

PROPOSED FISCAL YEAR 2004 BUDGET REQUEST FOR THE DEPARTMENT OF ENERGY

HEARING BEFORE THE COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE ONE HUNDRED EIGHTH CONGRESS FIRST SESSION TO RECEIVE TESTIMONY REGARDING THE PRESIDENT'S FY 2004 BUDGET FOR THE DEPARTMENT OF ENERGY

FEBRUARY 25, 2003



Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

86-300 PDF

WASHINGTON : 2003

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2250 Mail: Stop SSOP, Washington, DC 20402-0001

COMMITTEE ON ENERGY AND NATURAL RESOURCES

PETE V. DOMENICI, New Mexico, *Chairman*

DON NICKLES, Oklahoma	JEFF BINGAMAN, New Mexico
LARRY E. CRAIG, Idaho	DANIEL K. AKAKA, Hawaii
BEN NIGHTHORSE CAMPBELL, Colorado	BYRON L. DORGAN, North Dakota
CRAIG THOMAS, Wyoming	BOB GRAHAM, Florida
LAMAR ALEXANDER, Tennessee	RON WYDEN, Oregon
LISA MURKOWSKI, Alaska	TIM JOHNSON, South Dakota
JAMES M. TALENT, Missouri	MARY L. LANDRIEU, Louisiana
CONRAD BURNS, Montana	EVAN BAYH, Indiana
GORDON SMITH, Oregon	DIANNE FEINSTEIN, California
JIM BUNNING, Kentucky	CHARLES E. SCHUMER, New York
JON KYL, Arizona	MARIA CANTWELL, Washington

ALEX FLINT, *Staff Director*

JAMES P. BEIRNE, *Chief Counsel*

ROBERT M. SIMON, *Democratic Staff Director*

SAM E. FOWLER, *Democratic Chief Counsel*

PETE LYONS, *Professional Staff Member*

CONTENTS

STATEMENTS

	Page
Abraham, Hon. Spencer, Secretary, Department of Energy	3
Bingaman, Hon. Jeff, U.S. Senator from New Mexico	2
Domenici, Hon. Pete V., U.S. Senator from New Mexico	1

APPENDIX

Responses to Additional Questions	47
---	----

PROPOSED FISCAL YEAR 2004 BUDGET REQUEST FOR THE DEPARTMENT OF ENERGY

TUESDAY, FEBRUARY 25, 2003

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m., in room SD-366, Dirksen Senate Office Building, Hon. Pete V. Domenici, chairman, presiding.

OPENING STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Could we have order, please?

Good morning, everyone. And thanks to the Senators who are here. In particular, we want to thank you, Mr. Secretary, for coming today and spending some time with the committee. We look forward to your testimony regarding the President's budget and any other matters the Senators might want to inquire of you this morning.

I am pleased to be joined today by the ranking member of the committee, Senator Bingaman. The Department of Energy, I think we all know on this committee, has a very extensive presence in the State of the chairman and the ranking member. And I am sure we will have some questions of you regarding those activities.

On a general nature, the President has requested a total of \$23.4 billion for the Department of Energy, which represents a \$1.3 billion or 5.9 percent increase over what he requested in last year's budget. For the most part, I believe this is a rather well-focused DOE budget.

As the committee prepares to consider legislation to establish a comprehensive national energy policy, we will be giving serious review to the President's budget proposals as they impact on that activity, proposals for civilian energy programs under the committee's jurisdiction: Energy supply, the Office of Science, environmental management, fossil energy, and energy conservation.

The President's budget is focused on key goals for these programs: Reducing dependence on energy imports, achieving a cleaner, healthier environment, improving our energy infrastructures, and maintaining a world-class scientific research capacity.

Facing the budget realities, the Department necessarily has to order and reorder program priorities to find the funding to support the promising programs and new initiatives to meet these goals. There are many issues for the committee to discuss with the Secretary. And we look forward to that exchange.

I look forward to working with you, Mr. Secretary, as this committee works on its national energy policy legislation.

I would now like to recognize Senator Bingaman for his opening statement, and indicate now that we are going to call on Senators in the order of their arrival, if that is satisfactory with you, Senator Bingaman.

Senator BINGAMAN. That is fine.

The CHAIRMAN. I yield to you.

**STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR
FROM NEW MEXICO**

Senator BINGAMAN. I thank you very much, Mr. Chairman. I also welcome the Secretary and appreciate him being here.

I will just mention several disappointments that I have had with trying to review the President's budget request for the Department of Energy. My general impression is that it gives a signal that energy issues are not a very high priority for the administration this year. Some of the specifics that lead me to conclude that are that: The energy efficiency budget is proposed to be lower than last year's request and, in fact, lower than the amount that we appropriated 2 years ago. Also, how else do you explain a 60-percent cut to research and development to increase domestic oil production?

Clearly, there are some other major problems in the budget that concern me as well. There are surprising cuts and program terminations across the board, across the broad range of energy technologies, in wind energy, geothermal, biomass energy, the Nuclear Energy Research Initiative, methane hydrates, the oil exploration and production accounts. Cuts for oil exploration and development, research and development are particularly hard to understand.

As we all know, we are at a point in our history where crude oil prices are very high. Gas prices are beginning to close in on \$2 a gallon. And as I read the President's budget proposal, it is to cut the R&D that would continue to support responsible domestic oil production by 60 percent.

I know a reasonable amount about these R&D activities related to domestic oil production. They benefit the independent producers, many of whom are in our State and who are not able to afford their own research and development programs. As I read the budget, much of that work is essentially being terminated in the budget.

In this area of hydrogen, the Hydrogen Initiative, there, it seems to me that while we are seeing increased focus on hydrogen vehicles and developing transportation from hydrogen vehicles 20- to 30-years in the future, we are actually seeing reductions in the efforts on energy technologies that are nearer term, and that includes vehicle technologies.

So there are some serious issues that I want to have a chance to ask questions on. And I will look forward to that after we hear the Secretary's statement.

Thank you.

The CHAIRMAN. Thank you very much, Senator Bingaman. Mr. Secretary, we would be pleased to hear from you now.

**STATEMENT OF HON. SPENCER ABRAHAM, SECRETARY,
DEPARTMENT OF ENERGY**

Secretary ABRAHAM. Mr. Chairman, thank you. I want to thank you and the members of the committee, Senator Bingaman, with whom we worked closely during the last Congress and continue to have many issues that would come together, and all the members, the new members of the committee as well. We look forward to working with them.

As you indicated, our fiscal year 2004 budget request for \$23.4 billion is a sizeable increase over the previous request for 2003. We believe it will allow the Department of Energy to help make America safer and more secure.

What I would like to do is begin with a brief review of the budget with a discussion of our programs related to national defense. These programs, as you know, include maintaining our nuclear stockpile, rebuilding the capabilities of our defense complex, preventing the spread of nuclear weapons and materials, and continuing our outstanding naval reactors program. Our 2004 budget submission includes a total of \$8.8 billion for these programs, which constitutes about a \$925 million increase over the submission last year.

As everybody knows, one of the most important duties the Energy Secretary has is to certify the safety, security, and effectiveness, reliability, of our nuclear stockpile. To meet this challenge, our 2004 budget request proposes \$6.4 billion in spending for stockpile stewardship and the rebuilding of our defense complex, about a \$532 million increase over the 2003 budget submission.

We will be using the additional funding to advance the scientific and manufacturing capabilities we need to ensure our long-term ability to certify the nuclear weapons in the stockpile. We will also continue to refurbish aging weapons, dismantle warheads and bombs that are retired from the stockpile, continue to restore the capability to manufacture and certify war reserve plutonium pits for the stockpile, and proceed with our work to rebuild and revitalize the physical infrastructure of the nuclear weapons complex.

At the same time, we must expand our already productive efforts to prevent the spread of nuclear weapons and materials. Our 2004 nonproliferation budget submission totals more than \$1.3 billion, which is a 30-percent increase over last year. This additional funding will enhance our ability to detect and prevent the proliferation of weapons of mass destruction and protect or eliminate nuclear weapons, weapons-useable nuclear material, and the infrastructure which supports them.

We are engaged in several aggressive cooperative nonproliferation programs, most notably with Russia, and through the extensive nonproliferation work of the International Atomic Energy Agency. As we carry out our national security duties, our responsibility extends to cleaning up the legacy of half a century of nuclear defense work here at home. Our budget submission includes \$7.2 billion for environmental management, the highest amount ever requested for these programs.

Those funds will allow us to continue with our reform cleanup effort, which will accelerate completion of environmental cleanup programs by approximately 35 years, reduce risk to the public and

the environment, and save taxpayers more than \$50 billion in program costs.

Turning to the energy policy area, the 2004 energy budget submission of \$2.5 billion will allow us to continue our wide-ranging energy efforts, including the research and development work that will lead to the eventual transformation of our energy economy.

Two programs illustrate the ways we can more safely employ abundant domestic energy sources. The first is our \$63 million budget request for a new Advanced Fuel Cycle Initiative, which will help us devise a better fuel cycle for our nuclear powerplants that cost less overall, is more environmentally benign, more proliferation resistant, and points to a sustainable long-term future for nuclear energy.

The second grows out of President Bush's Clean Coal Power Initiative. In order to take full advantage of this low-cost and abundant domestic energy resource, we are increasing our concentration on carbon sequestration research with a \$62 million request, an increase of about 40 percent from last year.

And as you all know, in the State of the Union address, President Bush spoke of the remarkable potential of hydrogen as the transportation fuel of the future. The President's new Hydrogen Fuel Initiative, together with our FreedomCAR Initiative announced a year ago, will intensify our research and development effort to promote a personal transportation fleet powered by hydrogen fuel cells, as well as the infrastructure to support it.

The administration is following its national hydrogen energy roadmap, the result of a 12-month collaborative effort between industry and government to help us chart, as well as ultimately realize our objectives. Over the next five years, we will spend about \$1.7 billion for FreedomCAR and the Hydrogen Fuel Initiative, doubling the fiscal year 2003 spending, or near doubling it, and advancing a commercialization decision from the year 2030 to the year 2015.

Mr. Chairman, the Department's responsibilities are very wide ranging. And in the time I have today, I can only give a glimpse of the work that we are doing. The many important programs I have not had time to mention in these opening remarks include programs designed to promote domestic energy production and international energy trade and investment, our projects to further develop wind, solar, hydro power, biomass technologies, and to increase industrial, commercial, and residential energy work and energy efficiency, as well as the work of our Office of Science on which we rely to fulfill all of our responsibilities.

The Office of Science is pioneering the theoretical and practical advance of scientific knowledge through its work on the human genome, on nanoscience and nanotechnology, and computing and networking and on fusion, which we plan to buttress by jointing the international thermal nuclear experimental pact or project.

These programs offer the prospect of invaluable short-term and long-term benefits to the people of America and the world. Mr. Chairman, there are many other productive and promising initiatives underway at the Department of Energy. I look forward to discussing them with you here today in the question and answer session. I thank you for the opportunity to participate.

The CHAIRMAN. Thank you very much, Mr. Secretary.
[The prepared statement of Secretary Abraham follows:]

PREPARED STATEMENT OF HON. SPENCER ABRAHAM, SECRETARY,
DEPARTMENT OF ENERGY

INTRODUCTION

Mr. Chairman and Members of the Committee, it is a pleasure to be here today to discuss the President's Fiscal Year 2004 budget request for the Department of Energy. In doing so, I want to stress the ways this budget is going to help us accomplish our various missions related to defense, energy, environment and science.

To promote energy independence for our country, while dramatically improving the environment, we have developed an ambitious, long-term vision of a zero-emissions future free of reliance on imported energy. With this budget, we begin in earnest to research and develop advances in energy technology that will not merely reduce or ameliorate environmental challenges, but eliminate them. These technological advances will not merely contribute to our Nation's energy security but guarantee it, and will provide energy and environmental solutions not just for America, but also for the world.

The President's FY 2004 Budget of \$23.4 billion for the Department of Energy (DOE) continues the Administration's commitment to ensure national defense and safeguard the Nation's energy security through advances in science and technology, as well as fulfill our obligation as environmental stewards to surrounding communities. While DOE's national policy objectives have not changed, this budget reflects a new approach toward conducting business at the Department of Energy. Re-engineering efforts that we began in FY 2002 have taken shape: programmatic activities are better focused to achieve primary mission objectives; budget priorities are set with improved measurable performance criteria; and corporate management initiatives reflect aggressive implementation of the President's Management Agenda.

This Budget reflects and addresses the critical challenges we face today and will continue to face in the coming decades. I have charted a course for the Department that emphasizes DOE's critical contributions to our Nation's national security and provides forward-reaching solutions to America's energy problems. These priorities are to:

- meet our responsibilities to maintain the nuclear stockpile;
- expand and make more comprehensive our non-proliferation activities;
- accelerate the environmental cleanup program;
- develop 21st century cutting edge advanced fuel cell and alternative energy technologies;
- maintain coal as a major, affordable, domestically produced, energy resource through the Coal Research Initiative;
- build and maintain a stable and effective national defense program to respond to the guidance in the Nuclear Posture Review with special emphasis on revitalizing laboratory and production plant infrastructure;
- continue our leadership to ensure nuclear power remains a key energy resource; and
- maintain a world class scientific research capability.

The FY 2004 Budget is focused to deliver on these priorities.

As part of the Department's Strategic Planning process these priorities translate into six overlapping Departmental goals that form our core mission of National Security. All of the Department's planning and budgeting for FY 2004 drives toward these six goals:

- Maintain a safe, secure and reliable nuclear deterrent;
- Control nuclear proliferation;
- Reduce dependence on energy imports;
- Achieve a cleaner, healthier environment;
- Improve our energy infrastructure to ensure the reliable delivery of energy; and
- Maintain a world class scientific research capability.

Formulation of this year's budget reflects significant management changes occurring within the Department. Guided by the President's Management Agenda and the management reforms I started in FY 2001 and incorporated more fully into the budgeting process in 2002, this budget implements integrated, long-term program planning and performance accountability. The Department is implementing a five-year programmatic and planning framework to provide an unprecedented oppor-

tunity to consider future impacts in determining current year funding priorities. This budget was formulated to deliver measurable results to reach the Department's strategic goals. This achievement is a significant step toward reaching our key goal to focus DOE activities to adhere to the primary mission of national security. By streamlining program activities and management structures, the Department of Energy will more effectively and efficiently manage and produce the results expected by American taxpayers.

PRESIDENT'S MANAGEMENT AGENDA AND NATIONAL ENERGY POLICY COORDINATION

Rising to the challenge of the President's Management Agenda, the Department is beginning to improve how it manages, budgets, and plans for all programs, projects and activities. By improving management, performance, and accountability, the Department is striving for a level of performance that keeps DOE programs safe, on track, and on budget. A system of scorecards is being used to evaluate the effectiveness of various programs and allocate resources to achieve this end. Performance measures are improving to ensure that they are specific, quantifiable, concise, comprehensive, and relevant to the American taxpayer. Also, in accordance with the President's commitment to an expanded and effective electronic government, DOE is centrally managing information technology investments and other capital assets to reduce waste, increase productivity and provide increased services at lower cost.

Research and Development Investment Criteria. The President's Management Agenda calls for consistent and sufficient evaluation of future research and development (R&D) investments and past performance. In response, the Department developed internal guidance for programs to score their R&D activities against the Administration's applied R&D investment criteria. This approach focuses R&D dollars on long-term, potentially high-payoff activities that require Federal involvement to be both successful and achieve public benefit. The Department will continue to work to develop consistent scoring and benefits estimation methods, to permit comparison of applied R&D programs across the Department.

The applied R&D scorecard process is an important way the Department is integrating performance into the budget. The scorecard process is in its second year of development. The goal is to develop high analytical justifications for applied research portfolios in future budgets. This will require the development and application of a uniform cost and benefit evaluation methodology across programs to allow meaningful program comparisons.

The Department's Science programs also participate in the government-wide effort to evaluate basic research efforts against the criteria of quality, relevance, and performance. As a part of this first year effort for basic research programs, the Office of Science has incorporated the principles of the investment criteria into the formulation of its congressional budget narrative.

Program Assessment Rating Tool. In addition to the use of R&D investment criteria, the Department implemented a new tool to evaluate the management effectiveness of selected programs. The Program Assessment Rating Tool (PART) was developed by the Office of Management and Budget (OMB) to provide a standardized way to assess the effectiveness of the Federal government's portfolio of programs. While OMB's objective for FY 2004 was to evaluate 20% of each government agency, the Department of Energy reviewed nearly 60% of its activities through the PART process. The Departmental elements that participated were: Environmental Management; Science; Fossil Energy; Nuclear Energy; Energy Efficiency and Renewable Energy; the Power Marketing Administrations; and the National Nuclear Security Administration.

The structured framework of the PART provides a means through which programs can assess their activities differently than through traditional reviews. While some of the programs received less than favorable scores, the information exchange between the Department and OMB proved quite valuable. The current focus is to establish outcome- and output-oriented goals, the successful completion of which will lead to benefits to the public, such as increased national security and energy security, and improved environmental conditions. The Department will incorporate feedback from OMB into the FY 2005 budget and planning process, and will take the necessary steps to continue to improve performance. The results of the reviews are reflected in the Department's FY 2004 Budget. The refocusing of the Fossil Energy Oil and Gas program was supported by the results of the PART review.

National Energy Policy Office: The Department of Energy has established a National Energy Policy Office to provide strategic direction within DOE and, together with the Office of the Vice President, overall coordination within the Federal Government with respect to implementing national energy plan recommendations and

activities to assure dependable, affordable and environmentally responsible production, delivery and use of energy. This Office's mission is to achieve measurable performance results and consistency in implementing our national energy goals through effective policy development, planning and management strategies that are integrated into DOE's budgeting process and that foster interagency and intergovernmental coordination, generate public-private collaboration and enhance international cooperation. Through such coordination and integrated policy planning and budgeting, the Office will assure performance results that advance and safeguard our national energy security objectives by (1) assuring access to reliable and affordable energy supplies through a balanced and diversified portfolio of energy sources and modernization of energy infrastructure; (2) securing continuous improvement in energy efficiency and conservation through technology research development and deployment to manage effectively and extend our energy resources, reduce demand and lower costs; (3) assuring environmental progress and sustainable growth; and (4) assuring that a robust market guides pricing, technology deployment, energy efficiency, fuel selection and energy systems.

REDUCING DEPENDENCE ON ENERGY IMPORTS

The FY 2004 budget request implements many of the recommendations of the President's National Energy Policy (NEP) that emphasize federal investment on future energy solutions. This budget was formulated using a rigorous performance evaluation process as directed in the President's Management Agenda, to focus research and development resources where they make the most difference. As a result, the FY 2004 request for energy programs maintains high performing energy programs focused on the Nation's energy future. Hydrogen as a source of energy supply holds the promise of an ultra-clean and secure energy option for America's future. Another longer-term potential energy solution still at the level of basic scientific pursuit is fusion energy, which if successful, could help reduce the Nation's reliance on energy imports.

President Bush spoke of the remarkable potential of hydrogen as the transportation fuel of the future in his State of the Union Address. This Administration is determined to move us forward to a world in which new, abundant, safe and clean fuels replace our current energy sources.

The President's new Hydrogen Fuel Initiative, together with the FreedomCAR initiative, announced one year ago to develop hydrogen fuel-cell technology for vehicles, will dramatically increase our investment in the complex research and development effort to produce a personal transportation fleet powered by hydrogen fuel cells, and the infrastructure to support it. It will, to borrow the striking image used by the President, make it possible for the first car driven by a child born today to be powered by hydrogen, and pollution-free.

The FY 2004 Budget proposes \$169 million to continue to implement FreedomCAR to bring a full range of emissions-free, affordable cars and light trucks closer into being. The companion initiative, Hydrogen Fuel, focuses on the supply side of hydrogen power—to conduct the research and development necessary to help industry establish a delivery infrastructure and to resolve storage issues. With the proposed total funding of \$272 million for Hydrogen Fuel and FreedomCAR initiatives in FY 2004, DOE will help lead in the design and development of the technologies and infrastructure needed to create a new energy future.

Our Hydrogen Fuel and FreedomCAR partnerships represent public-private sector efforts of great complexity. The participation of government is important for coordinating the high-risk R&D work of numerous private sector partners and our national network of science laboratories. Government coordination will help resolve one of the difficulties associated with the development of a commercially viable hydrogen fuel-cell vehicle: the "chicken and egg" question. Which should come first, the vehicle, or the infrastructure of manufacturing plants, distribution and storage networks, and the convenient service stations needed to support it? Our hydrogen programs answer the question by proposing to help industry in developing both the vehicle and the infrastructure in parallel, by conducting research and development on critical technical issues. By so doing, we believe that we can advance industry's commercialization decision by 15 years, from 2030 to 2015.

Our hydrogen programs are exactly the right kind of effort for government to invest in because we believe that the potential public benefits of a hydrogen personal transportation fleet are so large compared to the costs. The hydrogen programs will tangibly, and positively, affect the life of every single American, beginning with the cars we drive and extending to the way we heat our homes and power our businesses. The public benefits we expect include increased energy security through decreased dependence on oil imports, and improved environmental conditions.

The achievements of the FreedomCAR and Hydrogen Fuel programs will come from the private sector, which will create the products that ultimately must win favor in the free market. The Federal government will assist, aid, coordinate, sponsor, and fund. But we will not pick one technology over another, or insist that our partners follow a path we dictate.

Over the next five years, we plan to request approximately \$1.7 billion for FreedomCAR and the Hydrogen Fuel Initiative. Our FY 2004 Budget nearly doubles FY 2003 spending for our hydrogen and fuel cell R&D partnerships with the private sector. We have drawn a roadmap to zero emissions and energy independence with the hydrogen programs, and we plan to vigorously pursue this exciting ride into the future. The funding will be focused on overcoming the daunting challenges of fuel cell cost; hydrogen production using fossil fuels, nuclear energy and renewable energy sources; on-board hydrogen storage; infrastructure; and development of uniform codes and standards.

There is a great deal of work to be done, but the promise of these programs is real and achievable. Hydrogen presents us with the possibility of a transformed transportation sector, along with many other possible commercial, residential and industrial applications.

Fusion Energy: Nuclear fusion, the physical process that powers the sun, is an energy source of the future that could transform the way we produce electricity. By reproducing the sun's process for transforming matter into energy, we may be able to create a new energy source that would produce no greenhouse gases or other polluting emissions, produce no high-level nuclear waste or fissionable materials, and be extraordinarily safe to operate. And, if successful, fusion power could have a prominent role in the production of hydrogen later in this century.

Fusion's potential is too great to ignore and this Administration wants to grasp it by rejoining the International Thermonuclear Experimental Reactor (ITER). ITER is an international fusion energy research and development project designed to take the next major step in the development of fusion energy. The Department of Energy is the lead U.S. agency in this effort. We have dedicated \$12 million within the Fusion Energy Sciences program budget for FY 2004 to support research directly tied to our participation in the ITER projects. ITER will be one of the world's largest international cooperative research and development project. It will take about 10 years to build at a cost of approximately \$5 billion. It is expected to operate for about 20 years.

We estimate our investment in ITER over the next 10 years will total \$500 million, plus contingency and inflation. This is obviously a major investment that reflects the seriousness we attach to this venture into new realms of scientific understanding. There is enormous potential in fusion, and we want to lead in its development with our ITER partners.

Weatherization & Intergovernmental Activities: In FY 2004, we are requesting \$357 million for Weatherization & Intergovernmental Activities, \$2.5 million less than our FY 2003 budget request.

The Weatherization and Intergovernmental Program activities support the President's National Energy Policy recommendations for rapid deployment of clean energy technologies and energy efficient products. The program's funding request also supports the President's commitment to increase funding for the Weatherization Assistance Program, which improves the energy efficiency of dwellings occupied by low-income Americans, by \$1.4 billion over ten years.

Our Weatherization Assistance Program request (\$288.2 million, \$11.1 million above the FY 2003 amended budget request) supports weatherization of approximately 126,000 low-income homes. Based on historic data, the program anticipates that low-income families will save \$1.80 in energy costs for every dollar invested over the life of the efficiency improvements. The Weatherization Assistance Program was assessed using the Administration's PART and was rated Moderately Effective.

Nuclear Energy: Over the last thirty years, nuclear power has risen to become the second most important source of electric energy in the United States and at the same time, the most operationally economic. The benefits of nuclear power as a clean, reliable and affordable source of energy are key to the economic and environmental underpinnings of this Nation. A central mission of the Department's nuclear program is to help enhance the basic technology and through some of the most advanced civilian technology research conducted today, chart a course to the next leap in technology. In FY 2004, we are proposing a \$388 million investment in nuclear research and development and for the Nation's nuclear science, technology, and education infrastructure.

This budget request responds to the President's priorities to deploy new generation capacity to fortify U.S. energy independence and security while making significant improvements in environmental quality. It continues the important work start-

ed over the last two years to deploy new nuclear plants in the U.S. by the end of the decade, to develop advanced, next generation nuclear technologies and proposes exciting new priorities—a new Nuclear Hydrogen Initiative to use high temperature nuclear energy systems for clean hydrogen production as part of the President's new hydrogen fuel initiative.

With these successes, we are able to pursue research that can optimize the use of the first repository and possibly reduce the need for future repositories. For years, countries around the world have pursued advanced technologies that could treat and transmute spent nuclear fuel. For the last three years, the U.S. has been a participant in this research. As one of my capstone initiatives, the FY 2004 budget request proposes an aggressive research and demonstration program, the Advanced Fuel Cycle Initiative, to explore advanced, proliferation-resistant fuel treatment technologies, fuels, and fuel cycle technologies. These same technologies offer benefits of enhancing national security by reducing inventories of commercially generated plutonium and enhancing energy independence by recovering the energy value contained in spent nuclear fuel.

However, in order to realize the full potential of this program and create waste forms that are sufficiently clean of long-lived, highly toxic species, to significantly reduce the time in which the material is hazardous, the efforts of AFCI must be integrated with advanced reactor research and development underway as part of our Generation IV nuclear energy systems initiative.

Two years ago, we launched the Generation IV program with nine other leading nuclear nations to develop advanced reactor technologies for commercial deployment after 2010 but before 2030. These reactor technologies offer significant advances in the area of sustainability, proliferation-resistance and physical protection, safety and economics. The international community has converged on six promising technologies for possible joint development, which include two gas-cooled, two liquid-metal-cooled, a molten salt-based reactor concept. While the Department has not yet decided upon which of these technologies it will eventually focus, all of the technologies are of considerable interest.

The Generation IV initiative is also closely linked to our new Nuclear Hydrogen Initiative, aimed at demonstrating economic commercial-scale production of hydrogen using nuclear power as early as 2015. The use of hydrogen using high temperature advanced reactors such as advanced gas-cooled or liquid metal cooled reactors can provide the heat necessary for the process. These technologies offer the potential for large-scale, emission free, hydrogen production, key to providing for our Nation's long term energy security and reducing reliance on imported oil. Today, through electrolysis, we can convert water to hydrogen using electricity, but we believe that for the future, high temperature nuclear energy systems coupled with thermo-chemical water splitting processes offer more efficient technology for the production of large quantities of hydrogen without the release of greenhouse gases.

Finally, this budget request allows the realignment of the mission of the Idaho National Engineering and Environmental Laboratory, revitalizing the site as the Department's leading center of nuclear research and development. While environmental cleanup remains a priority at INEEL for the next few years, the longer term focus of the site will transition to nuclear R&D, in areas such as Generation IV technologies, advanced fuel cycle technologies, and space nuclear power and propulsion technologies. This budget request contains more than \$100 million within the Office of Nuclear Energy, Science and Technology budget for the INEEL infrastructure, security, and for research.

ACHIEVE A CLEANER, HEALTHIER ENVIRONMENT

Protecting the environment is compatible with increasing the supply of dependable, secure energy. President Bush said: "Sustained economic growth is the solution, not the problem, because a nation that grows its economy is a nation that can afford investments and new technologies." By harnessing the power of American science and technology, we can achieve both energy independence and a cleaner, healthier environment. The FY 2004 Budget embodies a commitment to current and future generations of Americans to accelerate the cleanup of environmental damage resulting from Cold War nuclear programs, reduce the polluting effects of energy sources, and develop secure energy technology options for the future.

Environmental Management: The budget request for Environmental Management (EM) activities totals \$7.2 billion, approximately 5 percent above the comparable FY 2003 request and the FY 2003 appropriation, to accelerate risk reduction and closure. This is the highest amount ever requested for these programs. Although only a small portion of this activity is within the jurisdiction of this Committee, I would

like to highlight these within the context of the entire program budget. The request includes:

- Defense Site Acceleration Completion (\$5.8 billion);
- Defense Environmental Services (\$995 million);
- Non-Defense Site Acceleration (\$171 million);
- Non-Defense Environmental Services (\$292 million);
- Uranium Enrichment Decontamination and Decommissioning Fund (\$418 million).

The Environmental Management program was created in 1989 to safely manage the cleanup of the environmental legacy from 50 years of nuclear weapons production and nuclear energy research at 114 sites around the country. The scope of the program includes stabilization and disposition of some of the most hazardous materials known. In February 2002, the EM program released a Top-to-Bottom Review, which revealed that process rather than cleanup results had been the basis for performance and cleanup approaches.

Following this review, the EM program committed to devote the next eighteen months to developing and implementing several key management reforms that would drive accelerated risk reduction and project completion. In one year, we have begun developing and implementing four management reforms, which serve as the basis for the EM program's accelerated risk reduction cleanup initiatives. These reforms are:

Acquisition Strategy—We are implementing a strategy that will both increase competition by enlarging the pool of potential contractors competing for our work and increasing the accountability of our contractors to deliver real, meaningful cleanup.

Configuration Control—EM has begun implementing a strict configuration management system that baselines a number of key, critical program elements, such as Performance Management Plans, EM corporate performance measures, and life-cycle costs. Strict configuration control and monitoring of these key elements will facilitate a high confidence level that the goals and direction of the accelerated cleanup initiatives are being met.

Human Capital—This reform strongly supports the President's Management Agenda. EM is building a more robust organizational and performance accountability system that holds each manager and employee accountable for actions and results. Individual performance management is being fully integrated into EM organizational goals. We have completed two phases of senior executive reassignments between both the Field and Headquarters.

New Budget Structure—We have developed and begun implementing a new budget structure, which complements other management reform initiatives by focusing on completion and endpoints, and communicating EM's goals and objectives. The new budget structure clearly identifies scope and resources that directly support the accelerated cleanup and risk reduction mission.

Since the release of the Top-To-Bottom Review, significant progress has been made with respect to these management reforms. In addition, EM has made efforts to identify and implement changes in ten areas emphasized in the Top-To-Bottom Review that are critical to the success of the program. EM has focused these activities into special projects, each with a complex-wide perspective. Successful execution of these projects is crucial to improving the performance of the program and eliminating many of the barriers that have hindered previous initiatives to accelerate cleanup and reduce life-cycle cost.

In FY 2004, the EM program will continue making progress in implementing management reforms and making changes in the areas emphasized in the Top-To-Bottom Review. The EM FY 2004 Budget request has been tailored to meet our mission of accelerated risk reduction and completion. The most impressive aspect of this budget is that it fully reflects each site's new accelerated risk reduction and cleanup strategies. The strategic groundwork has been laid and the EM program is moving forward. Through the implementation of accelerated cleanup strategies, the EM program anticipates that cleanup will be completed at least 35 years earlier than originally anticipated (2035) and life-cycle savings of greater than \$50 billion will be achieved. The budget, in addition to accelerating our current programs, includes \$90 million for the construction of new facilities for the conversion of depleted uranium hexafluoride at our two gaseous diffusion plants at Paducah, Kentucky and Portsmouth, Ohio.

Civilian Radioactive Waste Management: The President's February 2002 recommendation and Congress' July 2002 approval of Yucca Mountain, Nevada as the Nation's high level nuclear waste repository was a seminal step in advancing the Department's goal to ensure the safe and secure disposition of dangerous nuclear

materials away from the hands of terrorists. The budget requests \$591 million for the Department's repository program. This request coupled with the FY 2003 requested amount would support the completion of work needed for the submission of a license application to the Nuclear Regulatory Commission in 2004 and the development of transportation capabilities needed to initiate repository operations by 2010. However, the \$131 million reduction from the President's FY 2003 budget request together with the four month-long continuing resolution, has introduced a high risk in our ability to meet a December 2004 license application date. We are assessing the impacts of this reduction in terms of additional funding needs to close the FY 2003 budget shortfall.

National Climate Change Technology Initiative (NCCTI): The FY 2004 Budget includes \$40 million to continue support for the competitive solicitation program under the NCCTI proposed in the FY 2003 amended budget. This unique program will spur innovation through competition based on various technologies' potential to reduce, avoid, or capture greenhouse gas emissions. Because of the diverse energy technologies involved, the expanded competitive solicitation program will cut across three programs in the Department in the FY 2004 request: \$24.5 million is proposed within the portfolio of the Energy Efficiency and Renewable Energy activities (\$15 million in renewable energy and \$9.5 million in energy conservation); \$2.3 million is proposed within the Nuclear Energy Science and Technology program; and \$13.2 million is proposed in the Fossil Energy program. These collaborative programs will focus climate change research and development investments on high-priority areas, where breakthrough technologies can slow the growth in greenhouse gas emissions, and selecting projects based on their ability to contribute to greenhouse gas mitigation.

The President's Coal Research Initiative. The FY 2004 Budget continues to meet the President's commitment to spend \$2 billion on clean coal research over 10 years by providing \$320.5 million for the President's Coal Research Initiative. This request for coal research is over two and one-half times the average request from 1995-2000. Since last year, the Department has made significant progress on a new generation of environmentally-clean coal technologies.

Our "first round" solicitation in the Clean Coal Power Initiative—the centerpiece of the President's clean coal commitment—attracted three dozen proposals for projects totaling more than \$5 billion. On January 15, 2003, we announced the first winners of this competition—eight projects with a total value of more than \$1.3 billion, more than one billion dollars of which would be provided by the private sector. Industry has again stepped to the table, offering both good ideas and significant private sector cost-sharing.

In FY 2004, we are requesting \$130 million as the next "installment" of the Clean Coal Power Initiative. The President's Clean Coal Power Initiative is especially significant because it directly supports the President's Clear Skies initiative. The first projects, for example, included an array of new cleaner and cheaper concepts for reducing sulfur dioxide, nitrogen oxides, and mercury—the three air pollutants targeted by the Clear Skies initiative. To ensure that even more effective pollution control concepts continue to emerge as candidates for future clean coal competitions, we are requesting \$22.0 million for research into even cleaner and more affordable innovations for existing plants.

Northeast Home Heating Oil Reserve: We are requesting \$5.0 million for the Northeast Home Heating Oil Reserve. The \$3.0 million decrease from last year's request reflects cost savings realized from recompeting our commercial storage contracts. The 2-million barrel reserve remains ready to respond to a presidential order should there be a severe fuel oil supply disruption in the Northeast. A key element of this readiness is a new online computerized "auction" system that we implemented during the last year to expedite the bidding process. Installing and testing the electronic system (including tests with prospective commercial bidders) has been a major element of the Office of Fossil Energy's role in implementing the "e-government" initiatives in the President's management agenda.

IMPROVING OUR ENERGY INFRASTRUCTURE

Failure to meet increasing energy demand with increased energy supplies and vulnerability to disruptions from natural or malevolent causes could threaten our Nation's economic prosperity, alter the way we live our lives, and threaten our national security.

DOE will continue assist in meeting this homeland security challenge. To that end, the FY 2004 budget proposal maintains an analytical capability to support the Department's energy security responsibilities. Included in the budget is \$4.3 million for Energy Assurance activities to continue to support energy security activities led

by the Department of Homeland Security. This is a key concern underlying the President's NEP recommendations.

The FY 2004 Budget includes a breadth of activities that will help improve the Nation's energy infrastructure. The Distributed Energy and Electric Reliability Program supports research, development, and deployment of electric reliability technologies that will upgrade America's aging electric power infrastructure during the transition to competitive electricity markets. The FY 2004 budget request is \$76.9 million for Electric Reliability to develop technologies that will relieve congestion on transmission and distribution systems, reduce consumption and increase energy supplies during periods of peak demand, accelerate the introduction of advanced systems to improve the efficiency of market operations, and reduce environmental emissions, including greenhouse gases. In FY 2004, the Electric Reliability activity will complete a national interest transmission bottleneck assessment to identify congestion on the transmission system and work with regions, states and localities to remove bottlenecks where benefits outweigh the costs. In addition, the activity will work with transmission operators to deploy real time monitoring and control technologies to operate the existing grid more reliably and electricity markets more efficiently. The Department also proposes \$47.8 million for the High Temperature Superconductivity (HTS) activity to improve the reliability of transmission system components through the development and testing of the 100-MW prototype HTS generator, new designs of HTS power cables, and the 10-MW prototype HTS transformer.

As directed by the NEP, DOE will continue to work to remove constraints on the interstate transmission grid to help ensure that our Nation's electricity can flow more freely. In FY 2004, DOE and its Power Marketing Administrations (PMAs) will continue efforts to help ease the West Coast energy problems and help meet the region's long-term power and infrastructure needs. Last fiscal year, the Department's Western Area Power Administration participated in negotiations with two private companies to secure private sector financing for construction of "Path 15" transmission facilities that will relieve the critical transmission bottleneck between northern and southern California. This project, scheduled to be operational in late 2004, will reduce the likelihood of blackouts in Northern California. Finally, each PMA continues to work directly in the development of regional transmission organizations in response to the Federal Energy Regulatory Commission's Order 2000. This activity is consistent with the Administration's support for competitive wholesale electric energy markets.

MAINTAINING A WORLD CLASS SCIENTIFIC RESEARCH CAPACITY

We propose to spend \$3.3 billion in FY 2004 on our Science programs. The Science budget will fund real, programmatic increases of over \$170 million, due in large part to the planned completion of construction projects which will occur this year.

The FY 2004 budget request for the Office of Science supports the President's goal of ensuring continued U.S. leadership in science, and will enable the Office of Science to continue to support the Department's missions in energy, environment and national security. The Office of Science has provided approximately 40 percent of all federal funds in the physical sciences over the past decade. It is also the steward, and by far the principal funding agency, of the Nation's research programs in high-energy physics, nuclear physics and fusion energy sciences, as well as being the federal government's largest single funder of materials and chemical sciences. The Office of Science also supports unique or critical pieces of U.S. research in scientific computation, climate change, geophysics, genomics, and the life sciences. This research is conducted at both the Department's national laboratories and at approximately 250 universities nationwide. The Office of Science manages the construction and operation of some of the Nation's most advanced research and development facilities—a vital part of the Nation's scientific infrastructure used by over 18,000 researchers annually.

The Administration's FY 2004 evaluation of the Office of Science found that it had clearly defined purposes and was generally well managed, and cited its process of external reviews of construction projects as a "... widely recognized effective practice." The Office is automating many of its routine operations and by the end of FY 2004, 100% of grant and contract proposals will be received electronically. The Office is now in the process of implementing a restructuring to improve oversight of our laboratories by removing a layer of line management and instituting clear chains of responsibility, in accordance with the principles of the President's Management Agenda.

The Office of Science FY 2004 budget request is \$3.311 billion, slightly higher than the FY 2003 request. The Office of Science research programs are managed

in six major areas, and also include a restructured and enhanced effort in science education. Let me now address some highlights within the Office of Science budget.

The capabilities of terascale computing are transforming the conduct of science, bringing scientific simulation through computational modeling to parity with theory and experiment as a scientific tool. The Office of Science's program in Advanced Scientific Computing Research is at the center of efforts to realize the full potential of scientific simulation to solve mission related problems. In FY 2004, \$14 million is dedicated to a new Next Generation Architecture program to optimize computer architecture to meet the special requirements of scientific problems. This effort will include both evaluation of the impact of alternative architectures on application performance, and software research on next generation operating systems.

The FY 2004 request for the Office of Science's Basic Energy Sciences program increases funding for the President's initiative in nanoscience by \$64 million, to \$193 million. This will allow construction to proceed on a Nanoscience Research Center at Oak Ridge National Laboratory, as well as new construction of Nanoscience Research Centers at Lawrence Berkeley National Laboratory and Sandia National Laboratory in partnership with Los Alamos National Laboratory. The FY 2004 request continues funding for construction of the Spallation Neutron Source, which, following a rebaselining and rescoping exercise in 2001, is now on budget and schedule for completion in June of 2006.

The FY 2004 budget request for the Office of Sciences Biological and Environmental Research program provides \$59 million, an increase of \$24 million, for the continued growth of the Genomes to Life program, and \$25 million, an increase of \$22 million, for the Climate Change Research Initiative. This initiative will extend research in climate modeling, atmospheric composition and the regional impacts of climate change.

The High Energy Physics program supports almost 90 percent of U.S. research in high-energy physics. This research has the goal of developing a deeper understanding of the basic nature of matter, space, time and energy. The FY 2004 request will reflect an increasing emphasis on non-accelerator-based research projects. Funding will be increased for the Supernova Acceleration Probe at Lawrence Berkeley National Laboratory, a space-based experiment to explore the nature of "Dark Energy," an unknown force that is accelerating the expansion of the universe.

The Department's nuclear physics research program is the principal sponsor of nuclear physics research in the U.S., providing 85% of federal support. This research seeks a deeper understanding of the properties of nuclear matter. To support recent results from neutrino physics experiments, which point to new physics beyond the Standard Model, FY 2004 funding has been increased to support non-accelerator-based experiments used to investigate the physics of neutrinos in international collaborations at the Sudbury Neutrino Observatory, KamLand and elsewhere.

In response to the President's call for a "qualified teacher in every classroom," in FY 2004 the Office of Science will begin in FY 2004 a pilot program at Argonne National Laboratory, funded at \$1 million, to exploit the resources of the national laboratories to provide 4-8 weeks of professional development for K-14 science and mathematics teachers, competitively selected and matched with laboratory mentors working in their field of instruction. Intensive follow-up and performance measures will be applied to assess the results of this pilot. This initiative will help improve the quality of instruction in science and mathematics, and address a critical national problem, developing a technically trained and educated workforce for the 21st century.

CONCLUSION

Mr. Chairman and Members of this Subcommittee, that concludes my prepared statement. I will be glad to answer any questions you may have at this time.

The CHAIRMAN. I think, since we have so many Senators, we will use the 5-minute rule, if that is satisfactory. So we can use it on the chairman and the ranking member, also, until we get down to you, John, before we have to leave.

Mr. Secretary, I am sure that you are aware that heating oil prices have hit a record high. Gasoline prices have hit \$2 a gallon. And crude oil prices remain about \$36 a barrel. Oil supply remains constrained as a result of the Venezuelan strike that cut oil production from 3 million barrels a day to less than a million barrels.

I would like to ask you, what is the administration doing to minimize the economic disruption as a result of the high price of the natural gas and oil?

Secretary ABRAHAM. Well, in the short term, as I think you know, the administration has provided relief in the form of additional LIHEAP assistance. I believe the President directed the Secretary of Health and Human Services to add an additional \$200 million of LIHEAP assistance very recently. Obviously, both the Congress and the President are beginning work on an economic stimulus package, hopefully to provide help to our constituents around the country as well.

The challenges we have, though, on energy prices are ones that all too often repeat themselves, as this committee knows. In fact, I recall that when I first testified at the Energy Committee a couple of years ago, we had high prices as well. In fact, a comparison shows that these trends are similar to the ones we had at that time. People thought we were pushing for changes in energy policy and energy legislation because there was a crisis. And once the crisis abated, prices went down. People said, well, we do not really need to take action.

In my opinion, the most important thing we can learn from this competitive cycle is that we do need to have and implement a strong, comprehensive national energy policy. And it is not a case where these problems will go away. They will not, as we know, in the statistics you just referenced. So we need to take action, I think, to try to address this, so that in the long term we do not have a consistently repeating cycle of extremely high prices for energy commodities or shortages.

We care a lot about this. We have put in place an energy hot line so that consumers can let us know if they are seeing people take advantage of this situation, something we want to prevent. But the best way to deal with it is through comprehensive legislation.

The CHAIRMAN. Mr. Secretary, let me just be specific. Could you share with us what you know about Venezuelan production? Is it returning to its previous market conditions? Or just where are things with reference to us being able to expect a return to the marketplace of their production?

Secretary ABRAHAM. Well, it is my understanding, Mr. Chairman, that the crisis in Venezuela that had essentially shut production has passed. But it is also the case that it takes a fair amount of time to fully restore production to the levels that existed before the strike. We were given an estimate of anywhere from 60 to 90 days between the point when things started to come back on line to when that would be fully done. I know that we are monitoring that closely. I cannot give you a specific date as to when it will be at full strength. But obviously, the disruption caused by that strike has been felt particularly hard here in this country because of the extensive amount of work that we do in terms of the purchase of Venezuelan crude.

The CHAIRMAN. Let me just be more specific. We hear and know how long it took after the Iranian situation, when they had the big turmoil, how long it took to get full production back. Could you tell us for the record what is the expectation of the United States as

to how will Venezuelan oil come back onto the market and when we can expect it?

Secretary ABRAHAM. I do not think I can give you a more specific answer than the estimate I just did. But I would be glad to take that for the record, Mr. Chairman, and provide you with that.

The CHAIRMAN. All right. And let me ask with reference to the Strategic Petroleum Reserve, as it applies to the question I asked. Has the administration agreed to postpone the delivery of Strategic Petroleum Reserves in order to keep the supplies in the market more level?

Secretary ABRAHAM. Yes. As I think the committee knows, we had made a decision to fill the Reserve to its full 700 million barrel capacity. That was being done at a pace about 120,000 barrels a day. We have made decisions to defer the receipt of shipments from the royalty in kind program. We made that decision as it applied to January, February, and March, to try to keep that crude in the market. We are monitoring that as we continue to monitor all of these issues to determine whether we would continue or extend into the next period a deferral.

The CHAIRMAN. Let me talk a little bit with you about the funding of science programs just as briefly as I can. I think in order to fund programs within the amount that the OMB and the President have allocated to you, you have had to cut back or freeze some of the expenditure in the physical science areas. Would you share with me the concern that we must do more to increase our talent pool in the physical sciences and that increased budgets for the Office of Science are critically important in future years?

Secretary ABRAHAM. Mr. Chairman, as you and I think everybody on this committee is aware, the laboratories that are in the Department of Energy are, as some have said, the crown jewels in terms of America's science and technology leadership. And as in other areas of science, the National Institutes for Health and the National Science Foundation, there has been a tremendous amount of support and focus here on Capitol Hill. I recall that as a cosponsor to such legislation when I was in the Senate. There has been a lot of focus on those programs, maybe not enough on that which goes on in the basic science, perhaps because it is not as easy to appreciate that type of work as in the applied sort of context where we can understand the direct connection.

But people tend to, therefore, not know that it was in these labs of the Department of Energy that the human genome project got its start. And we are now engaged in an exciting program to develop a means by which we could have a—we can address the problems of retina disease with an artificial retina.

The budget we have submitted has, as sort of an underlying component, the fact that a number of major projects, for example the Spallation Neutron Source in Tennessee, are coming to completion. So when those programs are finished, it will mean that there actually is a little gain in terms of the overall budget, about a 4-percent gain in real terms, when you do not have to continue funding programs that are completed. But we intend to focus on this a lot and look forward to working with the committee to identify, as we move forward, other areas in which we might want to enlarge our science commitment.

The CHAIRMAN. Senator Bingaman, I am going to allow you 2 or 3 minutes extra, because I have one additional question.

Senator BINGAMAN. Go ahead.

The CHAIRMAN. Mr. Secretary, in preparing for the introduction and the markup of a comprehensive energy bill, a matter that has come to my attention as being one of the most difficult has to do with electricity, the whole area. And in particular, we are engaged right now in a very heated discussion, Senators to Senators, on the standard market design issue.

I know that many times the Department chooses to say that is an issue for FERC, for the Federal Energy Regulatory Commission. But I want to suggest to you that there is no more important issue with reference to putting together a bill than how we handle the issue of the SMD. Regulate more, regulate less, leave it up to the States, have the Federal Government do more?

And in the omnibus appropriation bill, you have been directed to study for us and give us your views with reference to these standard market design. And you are supposed to do that by April 30.

Secretary ABRAHAM. Right.

The CHAIRMAN. I do not think you have a more difficult assignment. And I want to urge that you be sure you use neutral experts, so that we get a report that is really helpful to us and does not just repeat the likes or dislikes of certain individual people, but rather what is good for the country. Are you already disposed and starting to put together that study?

Secretary ABRAHAM. We look forward to sharing that with everyone when we complete it, as you mentioned, by April 30. We have, throughout the process of work on energy legislation, consulted with a wide array of people with different perspectives on this. And we have also encouraged, you know, FERC to engage in consultation with stakeholders across the spectrum to ensure that really any final rule they might have consider such things as not just concerns about reducing cost to consumers and improving reliability, but also that we take into account regional differences that I think have to be acknowledged in any kind of final product.

And so all of those are part of what we are trying to assess right now in preparing this report for Congress.

The CHAIRMAN. Thank you very much.

Senator Bingaman.

Senator BINGAMAN. Thank you very much, Mr. Chairman.

Mr. Secretary, the International Energy Agency announced that member countries will release oil from their Strategic Petroleum Reserves in case there is an attack on Iraq as a way to calm the markets. Are we taking the same approach as the IEA? Have we said anything, have you said anything about—

Secretary ABRAHAM. No.

Senator BINGAMAN [continuing]. About willingness to coordinate a draw down with other IEA countries in the case of an attack on Iraq?

Secretary ABRAHAM. I do not know that I have said anything prior to right now. What I would say to you today is this, that we will and we can act quickly to use the Strategic Petroleum Reserve to fortify efforts by producers to offset any severe disruption, if it is needed. But we would make that kind of decision on the release

of oil reserves only in consultation with our IEA partners in the event of an actual severe disruption in supply.

One of the—I think the top recommendation of Vice President Cheney's task for report on energy a couple years ago said, and I quote from it, it says, "The NEPD group recommends that the President direct the Secretaries of Energy and Interior to promote and enhance oil and gas recovery from existing wells for new technology."

The program in your Department that is intended to accomplish this, the Petroleum Oil Technology R&D Program, is proposed for a 60-percent cut in this budget. How do you explain such lack of priority for this, if in fact you are interested in enhancing recovery through new technology?

Secretary ABRAHAM. Well, first of all, we are interested in enhancing our energy recovery from domestic production. That policy has not changed. The issue that comes to play here is a question of the effectiveness of the program as currently run. Both we in the Department and the Office of Management and Budget conducted comprehensive efforts to try to evaluate programs, not just in our agency, but throughout the Government, and deemed some of these programs to be among the least effective in terms of the way they are presently operated. And we want to make them better.

And we do not think that continuing the program at the previous level is justified, in light of our own evaluation and that of OMB. We are in the process of trying to make the program more effective in the future. And one of the jobs of our fossil energy program right now is to try to reexamine those areas, both the oil and gas program and natural gas programs, to try to produce a more effective blueprint for the future.

Senator BINGAMAN. And your thought is by cutting the fund 60 percent, you can get a more effective program?

Secretary ABRAHAM. The thought was that continuing to spend the money on a program that is ineffective is not a wise use of taxpayer money. And I wanted to come back to this committee with a program in the future that I felt that I could competently present as something that will get the job, not something that can be deemed ineffective by evaluators.

Senator BINGAMAN. One of the other issues of great concern around here is environmental cleanup. New technologies for environmental cleanup at DOE sites obviously are important to us, those of us who have States or are from States that have a large DOE presence. Last year we were told that the research program in the Office of Environmental Management would be transferred to the Office of Science. There appears to have been no transfer of funding along with this program, as I understand it.

The EM program has had its budget reduced by \$136 million, from \$200 million to \$64 million, in this budget request. And at the same time the program in the Office of Science that was supposed to pick up this research has seen its budget reduced. In that case, not as much. In that case, only from \$112 million to \$109 million.

What has happened to this program? And what has happened to this \$136 million that seems to have been lost in the transfer?

Secretary ABRAHAM. Well, I would not say it is lost. As I mentioned in my opening comments, the overall budget for environ-

mental management and cleanup is actually the highest budget submission that has ever been made. It is basically being used to help us move to an acceleration of cleanup to actual risk reduction at the sites, as opposed to just managing the risk.

We really believe that—and I was, as I have shared with the committee before, quite frustrated when I was given a blueprint for the environmental cleanup program to learn the plan was a 70-year plan at the cost of hundreds of billions of dollars. The communities who had had these sites were going to see no actual progress in terms of finality and cleanup for 70 years.

And so we have worked with all of our sites to determine what are the highest risks, to start actual risk reduction on a more accelerated basis. Our plan will now mean that we finish this work not in 2070, but in 2035. And so as opposed to focusing as many resources on developing new technologies for cleanup, we are actually doing cleanup, which I think is our top priority.

We are not ending those programs, but we are trying, at least in the initial period, to substantially reduce the actual risk itself.

Senator BINGAMAN. Let me just ask one follow-up very quickly. I am right, though, that this program, this environmental cleanup program, has now been shifted to the Office of Science.

Secretary ABRAHAM. Basically.

Senator BINGAMAN. And it is expected that the Office of Science should perform this program, in addition to its other responsibilities, for less of a budget in 2004 than it had in 2003 before it got the program.

Secretary ABRAHAM. Well, the answer is that we feel that the expertise in our science division is the right kind of expertise to advance new technologies. We are not emphasizing new technologies at this point, as much as we are advancing actual cleaning up the sites, which we believe is the principal mission of our Department.

Senator BINGAMAN. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Bingaman.

Senator ALEXANDER?

Senator ALEXANDER. If Senator Kyl has to leave, I think I would be glad to—no? Okay.

Thank you, Mr. Chairman.

Mr. Secretary, thank you for being here. I have a question about research and development, following up the Chairman's point about the Office of Science, and also, if I have time, about transmission.

As we look at the comprehensive energy bill, it has many parts. And use and generation and regulation often wind up on the front page. R&D and transmission are not usually getting as much attention. I am a big believer in research and development is this country's secret weapon, whether it is our great universities that have helped us do that or our laboratories or just the brainpower of the United States.

And as we think about, as you were indicating, how we fight wars or cure disease or have clean energy, that our real ace in hole in this country is R&D. I have been very pleased to see the country make a commitment to double the funding over the next number of years for NIH. I am concerned that we may not be making the same kind of ambitious plans for the physical sciences, particularly in terms of computational sciences.

I wondered if you would want to comment further on that? Would it not be a good idea to make the same sort of bold ambitious commitment to increasing our support for physical sciences that we have done in the area of health sciences?

Secretary ABRAHAM. Well, let me harken back to my days on the other side of the table here. And as a member of the Senate, along with others who are here today, I was one of those who supported the doubling of the NIH budget. The progress and success there has been very impressive.

It came about because there was a tremendous amount of interest in both Washington and Capitol Hill, but also at the grassroots level, because it is probably in some ways easier to generate that sort of excitement about curing diseases that afflict people in virtually all of the members' constituencies. It is a little harder, really, to educate and give people a better appreciation of how basic research helps contribute to the ultimate application.

So certainly we are trying to move more in this direction. In effect, as I mentioned before, our budget results in a 4½-percent increase for science. That is not obviously going to double the budget in five years. But because of programs that are finished, there is new money available to effectively make that net increase larger for this time.

I would urge members of this committee and others to take a look at the physical sciences, as you are suggesting, the way a lot of members did for life sciences in the past.

Senator ALEXANDER. Thank you. I agree with that. And I intend to do that. When the lights go off and the air gets dirty or when we begin to understand the tremendous advances from our studies in DNA, it helps bring it down to the grassroots level.

Let me switch to transmission for just a minute, which is usually a back page issue. As a part of a comprehensive energy research or energy bill, are there suggestions that you have that we should be considering about how to make the transmission of energy more efficient, as we look ahead? Because this is the easiest way to have more energy available and reduce pollutants in the air, if we can figure out how to do that.

Secretary ABRAHAM. Superconductivity, one of the programs that is part of our electricity reliability operation at the Department, is an important long-term technology. And it is one which we support. High temperature superconductivity is a budget area that we have supported in both the 2003 and 2004 budget, I think at sizeable amounts.

We do need this to address the point I think you were getting at, which is the tremendous projected growth in electricity demand over the next 20 years; the need to support that growth with sufficient transmission capabilities. The transmission system in this country was studied by our Department as an outgrowth of the national energy plan with a grid study we conducted.

We discovered that the existing grid is, in many cases, very old. In many cases, it is not capable of meeting the demand levels that we project. And, frankly, it is set up in a way, not surprisingly, that was largely fostered by the way electricity used to be transmitted; that is, a powerplant downtown in the city or in a commu-

nity with lines out to the homes. It did not contemplate the long-term haul kinds of approaches we have today.

And so to meet that growth, I think it is important to have an energy bill that would include incentives for this. We need to have the incentives. We also need to be able to do it more efficiently, because I do not know that we can build enough new transmission by itself over the next 20 to 50 years to meet the demand. I think we have to make it more efficient, so that we can send more over longer distances without as much transmission growth as would be otherwise needed.

Senator ALEXANDER. Thank you.

The CHAIRMAN. Thank you very much, Senator.

Let us see. Who is next here? Senator Campbell? Senator Craig? Senator Thomas, here you are.

Senator THOMAS. Thank you. I was holding out for that, actually. Thank you.

Welcome, Mr. Secretary.

Secretary ABRAHAM. Thank you.

Senator THOMAS. There is obviously nothing more important to us currently than energy and our policy, which has to include all kinds of things, as you point out, production, research, conservation, reliability, all those things. So to points I would like to make.

One is I see a reduction in fossil fuels. I see a change in the future. But for the next 20 years fossil fuels are going to produce almost all of our energy and alternative supply. Why would there be a reduction in fossil fuels?

Secretary ABRAHAM. In our fossil energy budget, I believe the budget submission we made a year ago was about \$800 million. I think the budget submission here is about \$746 million, or something in that range. It really does not constitute a reduction in the fossil fuel R&D component, however. That stays the same.

There are some changes, first of all, one of the line items we carry is related to the ongoing payments that were made in conjunction with the sale of the Naval Petroleum Reserve in California. And that has been cut by \$36 million, because last time we made a \$72 million payment in conjunction with the funding stream. This year it is \$36 million. We also had \$40 million more of advanced appropriations to use.

Senator THOMAS. Good.

Secretary ABRAHAM. So in reality the numbers do not go down that much.

Senator THOMAS. Which brings me to the one I really wanted to talk about, and that is Rocky Mountain research.

Secretary ABRAHAM. Somehow I suspected you might.

Senator THOMAS. Rocky Mountain Oilfield Testing Center has been funded since 1994. It is in the heart, of course, of the production area of the whole country and has done research. Eight percent of the cost of the research they have done has been privately funded by working with private companies, and so on.

And now there is a particularly interesting thing that they are confronted with and have an opportunity for. One is the sequestration of carbon. And the other is to work with the private oil company, which is right next to it, and will provide most of the opportunity for them to do the research.

So we are talking about carbon sequestration on the one side, and we are talking about enhanced oil recovery on the other. And the Rocky Mountain Oilfield Testing Center, RMOTC, and Anadarko are going to be working together, as well as some others. One of your secretaries, assistant secretaries, was out. I went on tour with him in August. He was very impressed with what they are doing. And yet I find in the budget no funding, a relatively small amount.

I hope that we might be able to take a look at that and compare it to the potential that is there and do something.

Secretary ABRAHAM. I have obviously been looking forward to getting that question from you just as much as I did from the Vice President. But—

Senator THOMAS. Well, we have three Senators, you know.

Secretary ABRAHAM. I am well aware. I do not mean to make light of it, though. And let me just say first and foremost that we regard the test center as an asset. The issue has been that in a tight budgetary climate we are trying to determine where the money that we have proposed could be best spent and where we hoped that perhaps private sector interest, that benefit from a facility like this, might step in to keep these kinds of programs going. Because we concluded that this was something that was so beneficial to private industry that we felt they had the ability to support this. But obviously we will continue to look forward to talking with you more about this.

Senator THOMAS. And the fact is that most of the research is conducted by the private, by the cost. But there needs to be some coordinating agency there. And quite frankly, you are talking about \$23 billion here. This is \$3 million or \$4 million to keep this thing going. And so I urge you to take a long look at it.

Secretary ABRAHAM. Will do.

Senator THOMAS. And finally, just an observation: I certainly agree with your comments on reliability in electricity. We need to take a look. Times have changed. And the delivery is much different. Appreciate all the efforts that your department made in the last time around. And hopefully, with emphasis on local control and RTOs and so on, work with FERC to make this thing work. So appreciate your being here.

The CHAIRMAN. Thank you very much.

Senator Craig.

Senator CRAIG. Mr. Chairman, thank you.

Mr. Secretary, welcome before the committee. Several questions that I was going to ask have been asked. Let me express to you the same concern that the chairman has spoken to, the physical sciences and our lack of funding versus the biological sciences. I understand the politics. And I think you have explained it well.

At the same time, we will begin to lag, if we have not already begun, in the physical sciences. And the Department of Energy has that great opportunity to invest in them through our national laboratory system in a way that probably no other agency has. And I am committed now to, if you will, stabilizing the growth in NIH. We are seeing the results of that. We are funding most of those research programs today. We are getting yield. Now it is time to redirect ourselves back to the physical sciences.

I hope you would not run from that. I know you will not. Certainly I will not. And I think a good many other of our Senators will. We have heard Senator Alexander speak to it.

In dealing with that and in dealing with research, I am looking at my laboratory and what can get done there and what should be done there and the reality of 2003 and 2004 budgets. You came to us with an 2003 budget, requested an \$18 million level. And I am talking specifically about nuclear research funding. Senator Domenici and I worked to lift that research to \$58 million. That is still \$20 million short, below last year's level.

We are contemplating, or we may have to contemplate, layoffs. And that—before we get to the 2004 funding. That would be a complication and an inability, once again, to stabilize. You hire people, and then you remove them, and then you want to hire them back later on. The instability of budgets and consistencies are awfully important. I would hate to see Argonne West have to do that at a time when you are advancing, as you and I and others have agreed, a nuclear agenda for this country. You do not dispose and then bring back. You try to stabilize and grow that. And certainly that is one area.

I have not been shy about this, nor the next generation concept of nuclear reactor design and the development of that. The President has spoken to that, certainly. And if you are interested in a hydrogen economy, you have to be committed to a nuclear program. They do go hand in glove much more so, I think, than most people realize. And so I do appreciate the beginning effort, the advance fuel cycle and all of that. We are going to try to advance that very aggressively here, because they do work cooperatively together. And I appreciate that.

Senator Bingaman asked the question as it relates to the zeroing out of research in E&M. You know, we are unique as a laboratory system in our country. For example, we have a waste stream in Idaho called the high level waste, the cow sign process found nowhere else in DOE. And yet we really do not have the technologies that are proven to get rid of it or to handle it effectively.

And yet we are zeroing that out. I would hope that we could reinvest a bit in that research. Because in the cleanup process there is a lot we know and a lot we could get done. And I applaud you for your acceleration of it. I think that is extremely important downstream, as it relates to resource allocation, but also as it relates to cleanup.

But we also have pieces of that cleanup that we do not understand all that well, that will require some research. And that is a complication that I think we are going to have to deal with.

So I guess my one question would be: How do we invest in the research that we will need to complete the cleanup?

Secretary ABRAHAM. Well, as I indicated before, our principal goal is to make very strong gains in terms of immediate risk reduction. We concluded in the evaluation we did, a top-to-bottom review, which Under Secretary Card, who is here today, along with Secretary Roberson conducted, that we were, as a Department, focused on managing risk more than we were on reducing it. And that is why it was going to take 70 years to complete the effort.

We decided that what we needed was to change the priorities to make risk reduction first and foremost, and that is what is reflected in this effort. We decided that the science division was more capable than the EM division of running the kind of advanced research program that engage in seeking new technologies. And so we have moved it there.

As I acknowledged before, we are not turning our back on new technology, but we really believe that our mission, as the Department, is first and foremost to reduce the risk. And so we have moved money in that direction, which is why we have the highest submission we have ever had for environmental management; an ongoing commitment, which I discussed last year when we brought forward our new accelerated cleanup program.

I do not want to mislead the committee into thinking that we have on the drawing board plans to ramp up dramatically the R&D in environmental cleanup until we have really made better progress on risk reduction. We think that should be funded first.

We also have, as I think the committee knows, some target dates we are trying to meet. The closure of Rocky Flats is on track for a 2006 completion. When that happens, some \$600 million or so per year that we spend there will literally cease to be needed, because it will be done. And then we will have more flexibility, I think, with regard to funding other programs.

That is not to diminish their importance, only to establish that our top priority right now is to close some of these sites that are well on the path to finishing and, where we saw very substantial, immediate high-risk problems to try to reduce that risk.

Senator CRAIG. My time is up. I will come back for a second round, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Feinstein.

Senator FEINSTEIN. Thank you very much, Mr. Chairman.

Good morning, Mr. Secretary. Since we last talked about Los Alamos, I have been following developments there as closely as I possibly can. And I just want you to know that tomorrow Bruce Darling is going to testify before a House committee. And I believe that what you are going to see is that really substantial changes are in the process of being made at Los Alamos. And I think they are changes that will be sustained.

The University has taken some, I think, very strong and aggressive steps. And I think that is going to become more evident tomorrow. So because we have talked about this, I just wanted you to know that.

I wanted to ask you a question about an article in the *Washington Post* entitled, "U.S. Explores Developing Low Yield Nuclear Weapons." The byline is Walter Pincus. And he begins with the point that the administration is reviving interest in developing low yield nuclear devices that could be used to destroy targets, such as reinforced bunkers holding chemical or biological weapons.

Secretary of Defense Donald Rumsfeld was asked that question. And he stated, "I don't believe there is anything currently underway by way of developing new nuclear weapons." Is that true?

Secretary ABRAHAM. It is true that we are not looking at designing a new weapon. The question that is, I think, posed here is part

of a design issue that both in the 2003 and again in the 2004 budget we have proposed funding for. And that is to study the possibility of redesigning an existing weapon to perform what we now, through the nuclear posture review efforts, conclude is a potential need in our arsenal.

And so this would not be the building of some new weapon system. It would be whether or not to convert an existing weapon to be able to perform a certain type of function as it is known, a robust earth penetrator capability.

Senator FEINSTEIN. And what you are saying then is that the budgetary needs in this budget and the next budget is just to study the issue. Is that correct?

Secretary ABRAHAM. It is to study the design components that would be needed, if you were to make that type of conversion of an existing weapon, as I understand it.

Senator FEINSTEIN. And how much is in the budget for that?

Secretary ABRAHAM. \$15 million.

Senator FEINSTEIN. And that is 2004 budget.

Secretary ABRAHAM. And I believe there was a similar amount which was in the 2003 budget, I believe, as it was finalized.

Senator FEINSTEIN. And then the 2005 budget would be how much?

Secretary ABRAHAM. I do not have a projection.

Senator FEINSTEIN. Okay.

Secretary ABRAHAM. I could get that to you for the record, though.

Senator FEINSTEIN. Okay. Thank you.

Yesterday I went to the floor to really put in the Congressional Record the evidence of fraud and manipulation in the Western energy market that has been recently uncovered. And as you well know, there are many specific incidents where traders have pled guilty now to fraud. And many firms have paid fines or admitted wrongdoing.

In addition, last month FERC uncovered one of the most egregious examples of fraud and manipulation that affected the Western energy market. And the transcripts really used the word, you know, we are going to manipulate the market. And this was, of course, Reliant. And these transcripts were released on January 31 of this year.

Now despite what I think is at least clear and convincing evidence of fraud, FERC chose just to give Reliant a slap on the wrist. Now it may be \$13.8 million. But nonetheless, if you look at the differential in the California marketplace of all energy costing \$7 billion one year and \$28 billion the next year, you see that once you get into the area of manipulation, the stakes become very, very large indeed.

The Department of Energy budget says that FERC is committed, and I quote, "to remedying individual market participant behavior as needed to ensure just and reasonable market outcomes."

What FERC could have done was rescind the company's authority to sell power at market-based rates. And that would send a very clear message to the rest of the marketplace that fraud and manipulation is not going to be tolerated. FERC did not do that.

I am really—and I recognize that FERC is a different entity. But nonetheless, it is part of the energy structure of the Federal Government. I would like to know your views on how this regulatory body, empowered to provide just and reasonable rates, is going to be able to do so if it does not take the action to send a strong message to the entire community.

Secretary ABRAHAM. Well, I guess I would say this: I would give FERC strong marks for the way it has moved aggressively to try to do a much more effective job of oversight and investigation. I think that since the sort of shift in direction that I think transpired when the chairman came on board, Chairman Wood, that they have been much more effective in doing that.

Senator FEINSTEIN. I agree with that, incidently.

Secretary ABRAHAM. And I would certainly like to see where instances of manipulation, fraud, whatever have transpired, I think they should take aggressive action. I do not know enough about the facts of the particular case here to comment on whether this was the right action there. But I would share your view that people trying to manipulate power markets or any of our markets need to realize that that will not be tolerated and that there will be a sufficient price to pay.

One of the things which I know we proposed in the energy legislation that the Senate worked on last year was much increased fines and penalties in these areas. And I do not remember if we got around to getting that through on the Senate bill. But I know the administration would be very open to significantly increasing the fines and penalties, whether criminal or civil, in these areas. I would support that.

Senator FEINSTEIN. Thank you very much.

Just one last quick question, if I might, Mr. Chairman. One of the problems is making the information public. Do you support the making of this information public?

Secretary ABRAHAM. I do not know what the reasons are to not make it public. I don't know if there is a legal impediment. So I would have to take that for the record. If there is a legal reason, I may be able to answer that on the record.

Senator FEINSTEIN. Thanks.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman.

Good morning and welcome, Mr. Secretary. In looking at the goals of the administration when it comes to your particular budget, and certainly in keeping with the President's message in the State of the Union and his emphasis on reduction of imported energy sources, we see the emphasis here on the Hydrogen Fuel Initiative, the FreedomCAR research, weatherization, and nuclear energy.

And I would like to know from the administration's perspective, where from your Department's perspective, increased domestic production fits in. Of course, coming from Alaska, our focus is the oil and natural gas that we have available and how this is going to fit into your budget.

Secretary ABRAHAM. Well, in terms of our budget, I am not sure if I can give you specific dollar attribution. What I can say is that it is our view that on both the issues that relate to natural gas, as well as domestic oil production, that there are obviously impediments with respect to access, which have been major issues of the Senate. It has been debated many times. And I am sure we will again this year debate the question of ANWR.

There are also issues that relate to access to natural gas in the Rocky Mountain region and other parts of the country that have been, I know, part of the challenge. And so I think it is more of a regulatory, in my opinion, challenge, dealing with existing statutes or regulations that have made it more difficult. It is difficult to cite some of the transmission or distribution capabilities, the pipelines and so on.

I think, you know, our focus is more on that part of the equation right now. We believe the product is there. It is whether or not we will be able to explore and develop it and then get it to market that obviously poses a big challenge.

Senator MURKOWSKI. Well, we both agree that that is the problem. And we are trying to figure out a way to, for instance with the natural gas, how we make that happen. The simple recognition that we have a supply/demand gap that is growing at, I think, an alarming rate—we have a hearing on that this afternoon—and the recognition that we need to do more to bring our gas to market. And I think when we look at those sizeable sources of natural gas for the country, it is going to be coming out of Alaska. And we need to figure out how to make that happen.

One of the things that you had mentioned, of course, with the electricity, talking about incentives, and we recognize that in the past there have been incentives for afforded for oil and gas developments across the country. And I would just like your two cents' worth here on the possibility of incentives or what we are calling now fiscal enablers for the Alaska natural gas pipeline.

Secretary ABRAHAM. Well, this is an issue which aroused much debate during the work that was done in the last Congress on the energy bill. And we worked with Alaska Senators and industry as well to try to come up with something that we felt was an appropriate level of support to that effort.

The administration did support some proposals in the area of loan guarantees. There was, as you know, as you well know, there were requests for a very substantial robust support for essentially putting a floor on price that could be triggering additional backing. We did not support that. And in light of the price projections we have today, as well as the prices we have today, it is our view that there is ample incentive for industry to bring this gas to market.

But we are looking forward to continuing that discussion with the interested parties to see if there might be a proposal that we could all come to agreement on. And we have not ruled support totally off the table. We are just trying to find what we think is an appropriate level of taxpayer incentives here that we think is justified under the circumstances.

Senator FEINSTEIN. Well, we will look forward to working with you on that, recognizing, too—and I think it was Senator Craig that had mentioned that with the President's emphasis on the Hy-

drogen Initiative, he suggested that you look to nuclear to make that happen. We would also submit that natural gas can help you make that happen, too. But again, and as you point out, it is the access issue. So we look forward to working with the administration and seeing how we can make that happen in a more expedited manner to meet the demands that we know we are going to be facing.

Secretary ABRAHAM. We do, as well.

Senator FEINSTEIN. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Senator.

Senator Bunning.

Senator BUNNING. Thank you, Mr. Chairman.

Welcome, Mr. Secretary. As you well know, we have been working on a problem in Paducah for a long time. I am going to bring up some things that may be unpleasant, but I am going to bring them up anyway.

During the Cold War, workers who were employed at the Department of Energy sites across the country served our country by helping to make nuclear weapons. Any of these workers subsequently became ill due to their work with radioactive and toxic substances at the sites. The DOE has worked to align the physicians' panel rule for the Energy Employees' Occupational Illness Compensation Program Act with compensation with congressional intent.

However, workers's claims for the physicians' panel under subtitle D of the act are backlogged. Your staff indicates that only 20 of over 14,000 requests for assistance with claims relative to State workers' compensations have been sent to the physicians' panel and only 6 of those claims have been processed.

Paducah alone has over 1,900 claims with zero having been processed. How long is it going to take for the DOE to process these cases? What are the major obstacles the DOE is facing that has led to this massive backlog?

Secretary ABRAHAM. First, just a little context. This is an issue where I strongly share your concerns about the bureaucratic hurdles, but also the need for us to act. I supported that legislation, I believe, when I was in the Senate and was very directly involved in the formulation of the rule that just very recently went into effect to govern this whole physician panel process. The rule has only been in effect for a brief period of time. But we are trying now to implement it effectively.

One of the things which we did, as you know, is, in the creation of that rule, to make sure it was, in my judgment, as friendly to the worker in these situations as it could be in terms of trying to minimize the potential for challenges to be made.

The problem now is one that I think takes an initial in-depth sort of effort to resolve site by site. Once those first cases by each site, at each facility, are conducted for the first time, we envision this process moving very rapidly. To give you a perspective on that, it is our belief that we will be in a position to achieve a production rate of about 100 cases per week by August of this year.

And the challenge, as I understand it—I am trying to relate what our environment safety health division told me. The challenge at each site is to try to get all of the facts together. That usually happens in the first case or first two or three cases to try to really un-

derstand exactly what the exposure rates were, what people were doing. And so once that is in place, we will be fairly able to systematically apply that to all the other applicants at that site. But getting the first case in each facility, all the facts understood fully so we can move to the physician panel with the information, is, I gather, the hard part.

And so once we get past that part, we assume that in each facility's case that this will move fast. And we want it to move fast. We believe, as I said, that we will be in a position to be processing 100 cases a week by this summer.

Senator BUNNING. Mr. Secretary, it would really help if the DOE would inform some of the claimants, people who have made claims, where you are at and where you want to get to. Because they are left completely in the dark, figuring, oh, they are going to ignore us.

The Department of Labor, as you well know, has handled the other section of that law very well. I mean, they have 39,000 claimants, under section subtitle B, almost 20,000 of those, and issued \$475 million in payments to 6,600 claimants since July 1, 2001. This is a far cry from the six claimants that DOE has been able to handle.

And I just really believe the—it is like sitting on an airplane and having no news for 5 hours. And you are on the tarmac. And you wonder what the heck is going on. And finally the pilot takes you back to the gate and says: You can get off the plane.

We do not want that with our workers down in Paducah.

Secretary ABRAHAM. And we do not want it either. And your work on this, in terms of keeping the pressure on us, is effective in a sense, because it makes us always keep this as a top priority. I would note that on the DOL, the Department of Labor, program, it is our Department, though, that provides a substantial amount of the information which is part of that.

Senator BUNNING. I understand that.

Secretary ABRAHAM. And we have been working on that. It is also the case that certain workers, the ones who have been able to be processed fairly quickly, are ones in which, because of the way that the structure of this legislation has been made, causation is not required for them to receive their claim. It is a mandatory, automatic settlement. It gives a little bit at the front end. I think it has allowed the Department of Labor program to move fast. And I am glad it has moved fast. And I want ours to move fast, as well.

Senator BUNNING. Just so the physician panel gets organized and we get the process. Thank you.

The CHAIRMAN. Thank you very much, Senator.

Senator Akaka.

Senator AKAKA. Thank you. Thank you very much.

And I have several questions. And I would like to add my welcome to Mr. Secretary.

Spence, it is nice to see you again, to see you here in the Senate.

As you know, Mr. Secretary, I have a strong interest in hydrogen programs. Hawaii and all islands of the Pacific share a common need for an alternative, reliable energy, a source that we will need to import. Hydrogen is a primary contender. And I am optimistic that in my lifetime I will be able to see hospitals, homes, and even

military bases and cars running on locally produced sources of hydrogen.

Naturally, I am pleased to see the President's initiative for hydrogen fuel cell research and development and the goal to have cars on the road by 2020. But I have concerns that the initiative will focus on personal mobility rather than providing milestones in the short term for robust infrastructure, for stationary and even portable applications.

I understand that the Department has established long-term goals. But what are the milestones in the short term that demonstrate a sound pathway for the hydrogen economy of the future? Most of the technologies will use the same proton exchange membrane, PEM, technology, whether stationary or mobile sources, such as cars and trucks. So why are we not focusing on stationary sources, as well?

Secretary ABRAHAM. Well, first of all, Senator, part of our fuel cell work is on stationary applications. We have put a higher emphasis in this budget on the applications, the transportation applications. But it does not mean that some of the things we are learning in that process are not equally applicable to stationary application. And we are continuing our work on distributed energy, as well as stationary fuel cell development.

The principal thrust of the things that we will be doing in the Hydrogen Fuel Initiative are to try to address the infrastructure questions. How do we get the hydrogen to the user, whether it is stationary or it is for transportation application? How do we more efficiently store hydrogen? And so a major part of the investment will be on storage. That, obviously, especially is relevant to motor vehicles, because we are talking about a fairly small contained area. But it also will be beneficial, if we learn those principals, to reduce the size of stationary storage facilities, as well. I will come back to that in a minute.

Obviously, we want to reduce the cost of the fuel cell itself. Right now for transportation application it is considerable greater cost and, thus, not very competitive with existing internal combustion engine-driven vehicles. You do not have to improve as much to make a stationary fuel cell for power generation, whether for a home or a business. You do not have to make it as great an improvement to be competitive in that market. And so we think that, as we reduce the cost of the technology, that it will have an even quicker potential effect on stationary applications.

And then, of course, we have the cost of producing the hydrogen, which will likewise, if we learn how to bring down that cost or if we create a more competitive environment in which people are trying a number of sources, we will reduce the cost of hydrogen production. That will be good news, whether it is for stationary or, I think, for transportation, as well.

So those are sort of the priorities. And I think a number of them can have effect on both stationary, as well as vehicles.

Senator AKAKA. Thank you. The Department of Energy is requesting \$26.6 million in the fiscal year 2004 budget for the natural gas technology program. This program supports innovative and breakthrough technologies, such as the gas hydrates program. The reliance on new natural gas sources, such as methane hydrates,

could help reduce carbon dioxide emissions and our reliance on international sources of fossil fuels.

Last fall, an international team of researchers in ocean drilling programs successfully brought 3,000 meters of gas hydrate core samples to the sea surface, while maintaining sub-sea floor pressures. This achievement provides several breakthroughs for the education and study of gas hydrates that may bring us closer to safe, reliable recovery of hydrates. We need to continue and increase this commitment to invest in basic research.

Why has the Department's funding request decreased? Starting with the fiscal year 2002 request of \$4.7 million, the requests have declined over \$1 million from fiscal year 2003 to the proposed fiscal year 2004 budget request of \$3.5 million. Is the Department not committed to innovative research in gas hydrates? Does the funding request reflect the Department's commitment to the program?

Secretary ABRAHAM. It does not reflect either a lack of interest in or belief in the potential for this. We have talked with and worked with you and your office on this before. I reassure you today that there has been no change in our overall view of this. I think some of the factors that have affected our funding submissions have been—both the extent to which there has been an interest in the private sector, which we have seen at least some indication lately might be picking up. It also has had, to some extent, been a function of the time horizon. Although that resumed when we envision commercial potential for this resource.

The budget which we have here is designed to allow for ongoing fundamental studies of hydrate properties, detection and quantification of naturally occurring deposits, which we think are essential to sort of lay the groundwork for potential use. But I would reassure you that it is one of the other areas that we are seeing, along with hydrogen and some of the work we are doing on fusion, as having some real long-term potential. And it is not a case where we wish to send a signal to the contrary. In terms of the priorities we have established, we just have not established it as high as the conference has. But we hope to work on it. And maybe in the future there will be more opportunities in our budget submission on this.

Senator AKAKA. Thank you very much for your response. My time has expired, Mr. Chairman.

The CHAIRMAN. Thank you very much, Senator.

I am very pleased that we have been able to go through. Everybody has had one round. And perhaps we will have a second round for those who would desire it.

I have only about ten minutes, and I will have to leave. Senator Craig, perhaps you could wrap up for me.

I want, as briefly as I can, to go through three or four issues. Mr. Secretary, the Yucca Mountain and the funding for Yucca Mountain and just what is meant in the President's budget statement saying that the administration is recommending that the amounts of budget authority and associated outlays in 2004 and 2005 that exceed 2003 levels be scored as an adjustment to the proposed discretionary spending caps for those years. Frankly, I have been at that for 23 years, and I do not know what that means. And I have never seen any language indicating what it is.

I would just greatly appreciate it, if you would get us the language. I am not going to sit by and watch another change in the Budget Act that affects trust funds without knowing what we are doing. So I would very much appreciate the language——

Secretary ABRAHAM. We will——

The CHAIRMAN. If it is intended to be in the budget resolution, we need it soon, if you could.

Secretary ABRAHAM. We will provide it as soon as possible.

The CHAIRMAN. Thank you very much. Mr. Secretary, there has been a lot of discussion here today about science programs. And I think you know that I am a very staunch advocate for research, basic research in particular. And clearly, I am an advocate of as much of that as you can in your Department, that it be adequately funded. And so I am a staunch advocate of the laboratory directed research program, which allocates 6 percent across the board of your research money to be used as seen fit by the laboratory directors to do research that they think is paramount for our country.

We always argue with the House as to how much. We are now at 6 percent. I think you know—if you do not, let us let the record show—that many years ago, it used to be 10 percent. And believe it or not, during the atomic energy days, it was 20 percent. They knew that if these great laboratories were given latitude into basic research, not requiring specificity by the Congress, that this basic research would impact the big issues of our day. Some of the greatest research projects that we have ever had came from that latitude and that freedom.

And so I hope you are an advocate of at least 6 percent. And we look forward to your support when we go to conference with the House on appropriations.

Secretary ABRAHAM. We do support it. There is always a debate on this when I testify before the appropriations committees about the nature of the application. One of the things which I have been pleased with is that I believe an overwhelming percentage of those expenditures are not only on positive and worthwhile projects, but also ones consistent with the mission of the Department. That is the one thing we have tried to inject into the thinking of the labs. But as you know, obviously, with these resources, they make the decision. But we hope they will try to make sure it is consistent with——

The CHAIRMAN. Yes. But, Mr. Secretary, you know when this Department is a world leader in nanotechnology, one would not assume that this should fall in the lap of one of the nuclear laboratories. But it does. Because there is direct relationship between nanotechnology and the nuclear weapons safety in the future. So that is a huge, huge program for mankind. And it has only a little, tiny bit of money, as we look through the Department's budget.

But I want to continue to make sure that you know that there are among us many who advocate that you continue on those programs and that you strengthen the Department and these programs, rather than weaken it. If we do not have some of those left in there that are really prominent programs, we will not be a science, we will not be part of America's science. It will all be elsewhere.

Secretary ABRAHAM. Director Orbach, who heads our science division, not in the NNSA side of the building, but on the energy science side of the building, has made nanotechnology a major priority in this budget. I believe that we have about \$195 million devoted to that. It is a new and growing area with five national labs engaged in various projects separate from the work we are doing at Sandia and other places.

The CHAIRMAN. And let me also suggest that you are finally coming back as a department in terms of nuclear research. Some people think nuclear disappeared. Others think it is going to be an energy source in the future. Any way you look at it, America must be involved. And we must know what the future is.

I commend you for coming around to funding advanced fuel cycle initiatives, which we started here. They are absolutely imperative. And you funded them, requested in your budget a high level. But the other two programs that went with it, the Nuclear Energy Research Initiative, NERI, and the one that is Nuclear Energy Plant Optimization, which is terribly important because you want to make sure the existing nuclear powerplants are optimally prepared for the future, you have zeroed those out or cut them substantially.

Frankly, I do not think we can do that. And we are going to have to find a way to find that money.

Secretary ABRAHAM. I would only comment as follows. First in the overall research budget and overall budget for our nuclear energy science and technology division, we have substantially increased that budget. Some of that is new money. And some of it we had to find within the program. We tried to identify where we thought the priorities were.

The NEPO budget, as I recall, was somewhere in the range of \$4 million or \$5 million, not unimportant money. But I know that the industry itself engages somewhere in the estimated range of \$70 million to \$80 million a year of its own research on more efficient operation. And we felt that the small amount that we were previously supporting with was really not that relevant to the total package there. And that is, I think, the thinking which we have.

We are also, in the program that you are well familiar with, our GEN-IV program, as well as the advanced fuel cycle, looking for ways to improve efficiency in the areas where we think our research dollars play a bigger role, because they really focus on the more high risk kinds of research that will be less likely conducted in the private sector.

The CHAIRMAN. Well, I commend you. First of all, we have gone in a period of four years from no research in these areas that I have just alluded to to substantially involving our Nation once again, in particular, fuel cycle research. I mean, clearly Yucca is not the end of the fuel cycle problems, but what do we even after Yucca that works. And the next thing will be some of the transitional research that we are working on now for the fuel cycle.

For the Senators present, again, thank you all for coming. Senator Bingaman is next. And then right down the line, Senator Alexander. I am going to go to the floor for a bit. And I want to remind Senators, if you have prepared statements, let us make them part of the record now.

Mr. Secretary, the things that we asked you to produce, would you do them as quickly as possible?

Thank you all very much.

Senator Craig, will you be the chairman while I am gone?

Senator Bingaman, I yield to you.

Thank you all very much.

Senator BINGAMAN. Thanks very much, Mr. Chairman.

Going back to the issue that Senator Bunning raised about the subtitle D of the act we passed compensating DOE employees and contractor employees for occupational illnesses, could you give me three items of information related to our State? And that is, in this backlog of over 14,000 claims, how many of those have come from New Mexico?

Secondly, how many of those that have come from New Mexico, if any, have been sent to the physicians' panel?

And then the third item, my information is that there is not a single New Mexican who has received compensation as yet under subtitle D. Could you verify that for me?

Secretary ABRAHAM. I will. As I indicated to Senator Bunning, we are in the process of trying it, take the finished rule and apply it in a way that is highly effective for the employees. And we will get that information to you, sir.

Senator BINGAMAN. Okay. On February 7, there were a group of 1,000 heating oil dealers that asked your Department for a release of heating oil from the Northeast home heating oil reserve because of the spiking prices for heating oil. Have you been able to respond to that request? Could you tell us what your response has been?

Secretary ABRAHAM. We have not released oil from the Northeast Home Heating Oil Reserve. We are of the opinion that both Congress, as well as we, have a pretty high standard in terms of the kind of threshold of disruption in supply that would be need to be reached, to release oil from the reserve. And I will give you at least our thinking on that.

The reserve itself has about two million, I believe, barrels of oil. That is about, in a peak cold period, 2 days' worth of demand in the Northeast. It is not a large margin at all. We really believe that that amount needs to be maintained, except in cases where the formula that is part of the Energy Policy Act is met, where there is a real, clear disparity between the price of crude and the price of home heating oil. That has not been the case. That formula has not been met; both prices have been rising.

Or a situation where there really is a unique impediment to getting delivery; ports and harbors that are iced in and so on. Two million barrels is not a lot. And we really feel that unless there is an emergency situation in supply, it should not be released.

Senator BINGAMAN. Let me ask about State energy programs. Your proposal to the Congress is to cut the funding in that area from the appropriated level of \$45 million to \$38.8 million this next year. One of the pressing concerns that States have is the lack of funding to support their energy emergency preparedness responsibilities. Could you tell me what your thoughts are as to how they are going to meet those responsibilities with this reduced budget?

Secretary ABRAHAM. Senator, I would have to double check and provide for the record any specific numbers with regard to meeting

those challenges. I am not sure that there has been a reduction that would affect emergency preparedness. But I would want to check that.

I would say that since, primarily since 9/11, our Department has, through its energy assurance division, been working very closely with every one of the States on issues that relate to security preparedness to provide advice, counsel, information with respect to potential threat issues that might affect the energy sector. I think we worked with every one of the 50 governors' offices. And I feel very positive about what is going on through that operation. But I would have to check as to whether or not the budget has in any way—I do not believe it has diminished that capability. But I would like to provide that answer for the record.

Senator BINGAMAN. Let me ask one other question. This relates to your Hydrogen Initiative, the hydrogen fuel cell future that the President talked about. A key issue that needs to be addressed as part of that is where does the hydrogen come from, and how do we produce the hydrogen.

Secretary ABRAHAM. Right.

Senator BINGAMAN. And obviously, advocates for renewable energy believe that renewable energy has a role to play in producing hydrogen in the future, particularly because it can do so without emissions and without adverse environmental effects in many cases.

The President's budget proposes to cut wind energy research and development, geothermal energy research and development, biomass energy research and development. My question is: Does that make sense in the context of trying to develop a hydrogen program? Should you not be at least maintaining current levels of effort with regard to the research on those renewable energy sources in an effort to be in a position to produce the hydrogen you are going to need for this hydrogen fuel cell future?

Secretary ABRAHAM. The collective budget for renewable energy programs, including the hydrogen work we are doing, has actually increased over last year. We have shifted some from some of those into the hydrogen area. I believe our solar budget is about \$80 million. It was about \$80 million last year. I think wind maybe changed from \$44 million to \$42 million. But they are very small changes.

As it relates to hydrogen, though, in our hydrogen fuel cell program, the Hydrogen Fuel Initiative Program, we actually, I believe, allocated about \$38 million to research on producing the hydrogen. Of that \$38 million, I believe \$17 million or so is going to be directed to research in the area of renewables as the source, about \$12 million for natural gas, about \$5 million for coal, and \$4 million for nuclear. So almost half of the new initiative's hydrogen production budget is going to be spent on renewable energy production sources.

Senator BINGAMAN. Thank you, Mr. Chairman.

Senator CRAIG [presiding]. Senator Alexander.

Senator ALEXANDER. Thank you, Mr. Chairman.

May I continue along the same lines as Senator Bingaman? You know, where is the hydrogen going to come from and go to a couple of the other sources you mentioned, specifically nuclear and coal?

Given the amounts of hydrogen that would be envisioned for something as bold as the President has proposed, is there any possibility it could be produced without nuclear power?

Secretary ABRAHAM. Well, we think two things at this point. First, a lot more research is required for us to determine where the cost effective options exist. Nuclear is certainly a potential source. Another source, which I touched on briefly in my opening statement, is the work we are going to be doing on an international, as well as domestic, basis, nuclear fusion, which has real potential, although quite a ways down the road, to emerge as both the source of electricity production, but also as a producer of hydrogen.

So we think nuclear has a potential to overplay here, but it is clearly a case in our judgment that the more possible source that are being researched the better, because if we could create some diversity in the sources, we not only hopefully have them in the competition that brings down the price, but obviously that affords us the maximum range of options.

Senator ALEXANDER. I hope the research will include some of the practical barriers to creating nuclear power. Because, unless I have missed something, there are not very many utilities planning to build nuclear powerplants.

Secretary ABRAHAM. No. And we have, from the very first weeks of the administration, focused on this issue. What are the things that need to happen, if we are to sustain even the existing facilities, let alone create an environment in which new ones might emerge? We concluded several things were needed. Number one was we needed to make really a national statement of support, which the President's energy plan did. I think there had been for some time a real lack of that kind of signal.

Second, we decided that clearly we had to address the issue of nuclear waste and its disposal. And we were very successful in the last Congress with the help of a lot of people on this committee passing the resolution to move forward with Yucca Mountain. I applaud the Congress in support of that.

Third, we decided we needed to work on the liability issues. And one thing that is unfinished in terms of our energy legislation is the Price-Anderson reauthorization, which has to happen before people are going to contemplate investments, unless they know what the liability structure is going to be.

And then we need to do more research in the advanced fuel cycle area and the generation core area. We are doing that in a robust fashion.

Senator ALEXANDER. Well, I hope you will continue to do that and let us know what the obstacles are, as we look for sources of cleaner energy. Because the production of hydrogen, we just use fossil fuels. We create more environmental issues at the same time we are solving them.

My last question has to do with coal gasification. Talk about that just a little bit. For a while that seemed like a promising initiative. And many private companies were working with it. And then it slowed down, because it didn't seem competitive anymore. Now there seems to be a resurgence of interest in coal gasification. And if were promising and could be produced without excessive pollut-

ants itself would be an important solution and alternative, it seems to me.

What is—you have reduced funding a little bit there. Talk about it just for a moment.

Secretary ABRAHAM. We do not rule out any area like coal gasification that has the potential to be part of this mix of cleaner energy. In the most recent round of announcements of our Clean Coal Power Initiative, I think at least one or more of the programs were in that area.

We have tried to put more of a focus, quite frankly, in this budget on carbon sequestration, which we viewed as being a particular challenge to us in terms of the ability to use the coal reserves this country has. Also on powerplant initiatives, we will be trying to develop powerplants of the future that would allow us to generate electricity using coal without the attendant emissions.

So those have had higher priority. But there clearly is a role for coal gasification.

Senator ALEXANDER. So gasification is still a viable alternative in your arsenal of solutions.

Secretary ABRAHAM. Yes.

Senator ALEXANDER. Mr. Chairman, thank you.

Senator CRAIG. Thank you, Senator.

Senator Thomas.

Senator THOMAS. Thank you. I was going to talk a little bit about coal, as you might suspect. And there are some research things going on with regard to hydrogen by using coal as the medium. In fact, there has been a program down in Arizona that is now being talked about moving to Wyoming where the coal would be. Let me just kind of—and I guess it is out of our budget. But your budget determines what you do.

It seems to me it is terribly important that we give some thought to the future. And I know you are, kind of 20/20 vision, of where we are going to be. Too often, we find ourselves dealing with the issue that is going to happen next year. But we are going to have to look like at capacity. They have to have gas. And now that is one of the problems we have had, a price differential from the well-head to the market, depending on the pipeline capacity, has caused people not to develop, but their cost of permitting on public lands. Public lands in the West is where most of our potential is. I know that you are not in that business. But nevertheless, as you look forward, that is one of the views that we have.

We need to continue to look at marginal wells. That is one of the things that I think that RMOTC is going to be trying to do in terms of working with Anadarko. And, of course, you mentioned the electric reliability issue, which certainly times have changed. And now we have merchant generators. And there has to be a way to move those things around.

So I am just interested in how much of a sort of a view of the future you are able to put together collectively and sort of hand out to the rest of us to work on, so that we can move forward and accomplish these things.

Secretary ABRAHAM. Well, I would just say that at the very beginning of the administration, when we put together our energy plan, we emphasized the real need to have diversity of sources and

diversity of fuel. And underlying all of our efforts has been an attempt to make sure we keep that diversity in place.

We simply are not in a position, notwithstanding calls by some to take huge components of our energy reserves out of play. Coal, which provides 50 percent of electricity generation, nuclear, which provides somewhere between 17 and 20 percent, any of the mixes, we want to promote more efficiency in our budget. I think the highest is as high as any appropriated level in the last 20 years on energy efficiency, renewable energy. And those sources have to be a greater part of this mix.

But at the end of the day, we do not want to see dependency on even one part of that mix. And I think that is the strategy. And then at the same time we recognize that having the product and not being able to make it available, because of either inability to access the product or to get it to the user has to be addressed as well. And your leadership on the electricity issues is critical, will continue to be critical in making sure people understand that if we do not address some of these impediments that deal with access, deal with investment in transmission and generation, that we are going to find ourselves having a hard time meeting the estimated 45-percent increase in electricity demand that we foresee over the next 20 years.

At the same time, we really do believe that it is important and we tried in this budget, as well as the President's State of the Union address, to say even as we go ahead maintaining and working on existing programs, we need to think in terms of a very significant leap forward in the future, because we cannot continue to just be limited by too much imported energy and the kinds of constraints we have today.

That is why we look forward to working with this committee on programs like our Hydrogen Initiative, because we really think that initiatives in fusion and other new technology ultimately are the solution, not just to the issue of energy security, but also at the same time the questions of environmental safety.

Senator THOMAS. Thank you. And I appreciate your work. Thank you, Mr. Secretary, for being here.

Senator CRAIG. Senator, thank you.

Mr. Secretary, I heard Senator Akaka talk about methane hydrate research legislation passed 3 years ago. He and I were the principal sponsors of. We think it is important. We think it does have potential, deserves some investment. You know, when we began to pump, and you were a part of putting fixed amounts and billions of dollars into the NIH, and we all did that with all the right reasons and are beginning to see the results, as it relates to biological sciences and human health and all that. And we certainly mentioned genome and the role that DOE has played.

But when it comes to advancing research dollars in the physical sciences, the chairman is right. The natural base is our laboratories. And to give them flexibility, NIH had the natural system of the team to dole out the dollars to the research applications and to screen them, to have some measure of value to them. We do that. We do not have that mechanism, if you will, the physical sciences in the way that they do.

And yet at the same time, you are hearing it here. And it is growing the Congress, a sense that we are under investing in that area. And that is where we can have probably the greatest impact.

Some of this concern that I think all of us have about energy is we ought to get out of the way of the market and let it work and give it more flexibility in certain areas where the Government does not play a dominant role. We play a dominant role in nuclear. We do not in a variety of the other areas.

But we have created phenomenal impediments. I sat down with the mining industry yesterday to see their phenomenal decline since 1993, when an administration decided to force them off the public lands. And so we are going into the foreign sources for our metals, much like we had to do with oil, with hydrocarbons, simply because it was an attitude in this country. That we can correct by stepping back and stepping out of the way, if you will, with reasonable sidebars for environmental concerns, but reasonable ones. And certainly that advances that.

We know that LDRD is the approach that we have had here in the physical sciences. Your advocacy of that, I think, would be tremendously helpful in allowing some flexibility there.

Senator Feinstein and I will reintroduce the Fusion Energy Science Act again this year. We will update it to include the initiatives you have talked about in it. Potentially, that might be incorporated in the new energy policy that I trust this Congress can pass this year. At some point, the public is going to grow awfully weary of energy spikes and cost run-ups, when they know that this Congress has simply failed to advance the market and failed to create the initiatives out of the policies of a Congress that would not allow that to happen. And I hope we can overcome that this year.

Let me go back to some of my parochial concerns. A question to you, a commitment, Mr. Secretary, to work with me to offset the impacts of 2003 budgets as we move to build an 2004 base out there as it relates specifically to the kind of research in E&M and in other areas that both Senator Bingaman spoke to, that Senator Domenici and I have.

Secretary ABRAHAM. Well, clearly, as I have said, we have tried to put a greater focus on cleanup. And that will continue to be part of the accelerated cleanup program, but within our budget as we move ahead, as I have mentioned, we are hoping for real progress to be made in closing sites and freeing up more research dollars, as well as dollars for other application.

And we will be glad to continue working with you on that.

Senator CRAIG. Well, we do not want to, if you will, kill the program before our initiatives get there. And I think we are running that risk at this moment if we are not careful.

The Chairman expressed his concern as it relates to Yucca Mountain and legislation and scoring. Mr. Secretary, would you like to explain for the committee your proposal and the need for it?

Secretary ABRAHAM. Well, our proposal is designed to try to address the fact that we have been collecting, as you know, monies from rate payers to the tune of some \$12 million, which has, I suppose, earned some interest along the way as well, for the purpose of the Yucca Mountain expenditures.

We are now entering the time frame in which, if we have appropriated sufficient funds, we would begin to ramp up the work there, now that Congress has acted on its resolution. That would be additional funding, obviously, for the work connected to resolving the technical issues, as part of the licensing process and then the construction phase, which would obviously begin very substantially at the end of licensing.

The mechanism which we are proposing, and have not finalized according to Senator Domenici and the rest of the committee, as well as the budgeteers, is a mechanism to try to accommodate what sort of adjustments in the discretionary budget caps are appropriate to accommodate that growth without it having to be offset. We view this as a little bit different kind of expenditure, because these are dollars that have been explicitly collected for these applications.

And we are trying to find a mechanism to make sure that, as that ramp up occurs, it is not, in our judgment, appropriate to take it out of other Department of Energy programs or anyone else's, because this is special money that was paid by rate payers. So we are trying to find a mechanism to do that that is one that the Budget Committee and others can support.

Senator CRAIG. Well, I appreciate your willingness to try to do that. And certainly, I think all of us are extremely interested in that. I have always been—I think all of us are frustrated about funds that are collected or trust funds that are established and tucked inside the general fund of our Government and then, if you will, used as leverage or offset against other expenditures. Well, we cannot spend the money there, because it is offsetting something somewhere else, even though there is a need. And certainly the collection was a commitment for that purpose.

My time is up. We have been joined by Senator Wyden.

Senator, do you have—

Senator WYDEN. I do have questions. But I think Senator Akaka has one or two. I do have some questions afterward.

Senator CRAIG. All right.

Senator Akaka.

Senator AKAKA. Thank you. Thank you very much.

I have just one question on the OSR, DOE's offsite source recovery program. The Department of Energy manages the offsite source recovery program basically to provide safe and secure storage facilities for low-level radioactive waste. I understand there are about 18,000 sources that pose high security risk that come under this program.

And right now you have probably collected thus far about 3,000 sources. Given the serious news, the national security aspect of this and other radioactive material program, which were originally created to safeguard public health and the environment, will you please explain, Mr. Secretary, why no funding is requested in the Department's fiscal year 2004 budget documents? Will the Department be able to ensure the safety without those funds and the security or the sources already stored at an OSR site, or how will the Department of Energy collect and score the sources that remain out there without these funds?

Secretary ABRAHAM. My understanding is that the funding might be in the defense part of our budget. But I would have to take that part for the record. What I would just like to emphasize to you is that we take this as seriously as you do, Senator. One of the concerns which Chairman Meserve of the Nuclear Regulatory Commission and I have shared is a concern about sources which others may not in the past have been as focused on, radiological sources that do not rise to the weapons level potential that are nonetheless the possible source of material that could be used for a radiological dispersal device or other type of usage.

We are working together. Our teams are working together. We will, in the next month or so, have a blueprint for additional actions on accountability, as well as security as it relates to that. In just a couple of weeks I will be headed to Vienna, where the United States is, at my request, actually going to be chairing, along with the Russian Federation and the International Atomic Energy Agency, an international conference on these issues. Because it is not just in the United States where there has been a certain tendency in the past perhaps not to put as much focus on securing these types of materials.

We hope to launch from this conference that the IAEA, the United States and Russian Federation will be hosting a significantly increased worldwide awareness among G77 nations about possible threats and the need to be more effective in terms of accounting for and dealing with securitizing those kinds of materials.

So it is something that I take very seriously. And I believe that I could actually take for the record and respond to you as to the issue of sufficient funding.

Senator AKAKA. Thank you for your response.

Mr. Chairman, I have questions that I will submit for the record.

Senator CRAIG. Thank you very much, Senator.

Now let me turn to Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman.

I want to welcome the Secretary, who is an old friend. We have written many laws together, particularly in the technology area. Mr. Secretary, I want to go over the question of gasoline prices with you. Because, as you know, they are just soaring. They are going through the stratosphere on the west coast. And I am very troubled about the administration's policy on this issue. And I want to zero in specifically on what we are talking about.

I understand Senator Bingaman asked some questions about the Strategic Petroleum Reserve earlier. Your view was that the administration's decision is they are going to be flexible with respect to when oil is released. There is currently a moratorium on filling the Reserve through March. In effect, I guess the oil companies are allowed to delay the delivery of oil that they are obligated right now to send to the Strategic Reserve.

I think this is a very regrettable policy. And I want to be very precise in terms of getting your assessment on a particular issue. I think reasonable people can differ with respect to when the oil ought to be released. What I think is a no-brainer, however, is that this country must have a clear policy, a policy that markets understand and a policy that consumers understand.

For example, the *Wall Street Journal* editorial pages, not exactly a left-wing organ, so to speak, they said that if there was a firm declaration, that the administration is prepared to release oil, a statement that we would be prepared to protect our consumers and our businesses, that that alone would have a stabilizing effect on markets.

Why is it that we cannot get a clear statement on this issue, and particularly a firm declaration that we will use it when we need it? And I would be interested in your response.

Secretary ABRAHAM. I think we will use it when we need it. The question that obviously, as you said, people can differ is: What constitutes the threshold of when it should be used? We do not believe it should be used to address price fluctuations. We do believe it should be used when there is severe supply disruptions. And that, obviously, is subject to a lot of different people's perspectives.

But as I said earlier today, we are prepared to use and can act quickly, if we decide that a severe disruption constitutes a basis for that. We would make that decision on consultation with our IEA partners in the event of the sort of disruption that we think would be an appropriate time to use the Reserve.

Senator WYDEN. So at what point would the administration be willing to use it, so that a message can be sent to markets and consumers? I mean, as I say, you have people like the *Wall Street Journal* editorial page saying: Fine. Let us have a debate about when it ought to be done.

But the market would benefit from a firm declaration. And I would very much like to see that, at a minimum. There are some other questions I want to ask about that. But can you tell us when, in terms of the kind of strong statement that the markets and consumers would benefit from, that the administration will act?

Secretary ABRAHAM. I do not think I can amplify on what I have said or what the administration has said. I mean, the *Wall Street Journal* is a fine publication. But it does not govern our policy on this issue or any other. We think the Reserve is there to provide energy security in times of severe disruptions in supply, unavailability at a level that we feel constitutes a basis for using it, not in other circumstances. And we believe that the circumstances that rise to that level have not yet been met.

Senator WYDEN. Let me ask just a couple of other questions on this point. The current high oil prices seem to be causing American consumers to spend nearly \$100 million more per day on energy compared to one year ago. So people come up at town meetings and they want to know what is the Government going to do for them?

What would the Department of Energy say to the people of Oregon and the people around the country who are paying these enormous sums, \$100 million per day, in energy costs? What is your answer to that?

Secretary ABRAHAM. Well, I can assure the Senator that if they are coming up to you, they are also coming up to the Secretary of Energy when the opportunity is provided. The circumstances that have caused the prices to rise in recent weeks have been building for some time, as you know. We in the independent analysis division, the Department of Energy Information Administration, had

already forecast a rising set of prices in this season compared to last year.

It is not that much different, I might point out, than it was 2 years ago during the winter season in terms of comparable prices. The difference, the main difference, is that today we have had other factors that have come into play, some beyond our control. A strike in Venezuela, which, as you know, significantly shut down one of our four largest energy trading partners. We have had a much colder winter than last winter. And that has contributed in part to this. We also have had a stronger economy in this winter than we did in the last winter. And that has also been a factor.

As I said at the outset, when Senator Domenici asked a similar question, the thing that one would note is the recurrent patterns, whether it is a 2-year cycle between these kinds of price increases or shorter or longer cycles, there does seem to be a cycle. And that is a pattern that I think at least can be at the short term effectively addressed. It can be addressed in a longer term by passing energy legislation designed to try to increase domestic production, moving forward with our Hydrogen Initiative that I know you are quite interested in, to try to move us past the level where we are so dependent on energy imports.

And those are some of the things at least that I hope we can work together on.

Senator WYDEN. The thing that troubles me about this, Mr. Secretary, is I think there is a double standard. I think that the administration is willing to cut breaks for oil companies and is not willing to cut them for the consumer. And I want to be real specific about what concerns me and then get your assessment about it.

Since December, the Bush administration has allowed the oil companies to delay the delivery of ten million barrels that they are obligated to deliver to the Strategic Petroleum Reserve. The administration obviously took this action. Tight supplies resulting from the strike in Venezuela drove up the prices. And clearly, it looks to me, and I think a lot of people that I represent, is that the administration is willing to cut oil companies a break and say, all right, your deliveries can be delayed, but consumers cannot be cut a break when you have tight supplies and prices going through the stratosphere.

And it just looks like a double standard to say that tight supply provides a basis to give oil companies a break on the deliveries of oil they owe to the Reserve, but not to give the consumer a break. What is your response to that?

Secretary ABRAHAM. My response is that while it might appear that way, it is actually quite the contrary. The oil companies who are putting oil into the Reserve do so under our royalty-in-kind exchange program. That is, they are using this to offset royalty obligations to the United States, when they have the deferral, as we have done the last couple of months. They have to pay a premium for that. In other words, they have to send more oil to the reserve ultimately than they would have otherwise, because they got the chance to keep that oil in the marketplace.

Moreover, the reason and the rationale for keeping it in the marketplace, as my former my colleague from Michigan, Senator Levin, writes me often, is the fear that the more oil we take out of the

market, the tighter the market even becomes from what it would otherwise be. And the belief that we have is that taking even more oil out of the market will drive up the cost to consumers.

In other words, the oil companies are going to end up paying more, because they have to pay a premium for this. In other words, like interest almost. And the consumers are paying less actually, because there is more oil in the market, thus, to at least a modest amount, reducing or increasing supply at a time when prices are already too high.

Senator WYDEN. We can continue the point. I guess I would say, Mr. Secretary, it is not very plausible to me that somehow this is being hard on the oil companies. The oil companies sought and have desired the particular course of action the administration is taking. Consumers are trying to get another course of action.

I just hope that you will take the counsel of some pretty independent people, including the ones that I am citing, *Wall Street Journal* editors and witnesses who sat where you are sitting even as recently as the week before last. They said at a minimum state a policy that you are going to protect the consumer and businesses and others that are getting hammered all up and down the West Coast, when we have this tight market. People are being pinched like never before.

And it sure looks to me like it is a double standard here. The oil companies have gotten something they wanted. You described the deferral in a different way. And again, reasonable people can have a difference of opinion with respect to this. The oil companies are plenty happy with the administration's decision. And consumers are getting hosed because they are not getting any protection from the Strategic Reserve.

Secretary ABRAHAM. Well, I am glad to take your advice, as I always do, and include it in the considerations which we have. I would, though, say that, at least in terms of the deferrals, we have had strong and quite wide-spectrum advice in terms of the political spectrum that taking more oil out of a market at a time when there is already constraint in the market is not going to help consumers. It is going to raise the cost of their gasoline or home heating oil.

And that if we are charging oil companies extra to do that, it seems to me we are offsetting any benefit they might have reached. In fact, that is the reason we will charge them a—

Senator WYDEN. We will find common ground on other things like the Cox-Wyden fuel cell bill and the like. But you ought to know how strongly people feel about this. I mean, my State has the second highest unemployment rate in the country. I also was in California visiting my mother. Gasoline is well over \$2. People are looking to their government to stand up for them. And it looks to me, as I have said, that there is a double standard and we disagree passionately on this issue. The other ones we agree on. But I hope you will send a message to markets and to consumers on this issue. Because I think it is going to pound our economy at a time when we are very vulnerable.

Thank you, Mr. Chairman.

Senator CRAIG. Senator, thank you.

A couple of concluding questions. Mr. Secretary, we have held you here a good long while. And we appreciate your presence. I reflect some of the concern that my colleague from Oregon does. Idaho is about to start farming. And with these increased fuel costs, it is going to be an expensive agricultural year in Idaho.

While I have been out of the State the last week, I have talked about darned if you are and darned if you do not. We could have had two markets. And if you could have freed up supply into one and kept it restricted in another, maybe we could have priced it out in a way that we would have been able to determine for Senator Wyden whether your wisdom was good or bad.

I do not think we have that kind of a market. I think we also have restricted refinery capacity that also creates this problem, when we have an overload of fuel demand in the Northeast because of the cold winter. Put that all together, the perfect storm has not quite come. But it certainly does drive up price. And consumers are frustrated. There is no question about it.

There is probably a no-win proposition when Congress continues to spin its wheels, as it has for the last 24 months in its inability to produce a national energy policy for this country. So your urgency there, the President's urgency, in pushing us toward that, to overcome our political stupidity to get there is going to be awfully critical in the coming months. I think we have an opportunity to get there. And your championing that is going to be most helpful.

Secretary ABRAHAM. If I could just comment. You know, I noticed in the job I have that when energy prices are high, as they were when we took office 2 years ago and today, it is usually our fault, my fault. But when they go down the credit goes to the marketing working. But the fact is we care very much about what the impact of this is.

And what I find sometimes frustrating, Senator, and you have just put your finger on it, is that when there is a problem like this, a crisis situation, in fact when there was two years ago, and we asked for action on an energy policy, we were told that we were exploiting the crisis to try to force through undesirable or at least controversial legislation. That was not the case.

And then when the crisis abated, everybody said, well, there is not a crisis, so we do not need an energy bill. And now we find ourselves, two years later, facing higher prices. And once again, we are saying this should be, yet again, a reminder to us of why we need to take the action you have recommended. I hope we will.

Senator CRAIG. My last question to you, Mr. Secretary, while I am out in the State and across the country, it is unique the number of people who are coming up to me with devices and interests and concepts and ideas that relate to homeland security, in an effort to see if I cannot get them in to visit with our new Secretary of Homeland Security certain that what they have will make the world a safer place.

What they recognize is a very large pot of money that is sitting there, or will be ultimately utilized by the Department of Homeland Security. Congress also recognized that. And Congress directed the Department of Homeland Security to utilized DOE national labs to carry out the security research agenda.

My question to you, as Secretary Ridge begins to put in place the contractual mechanism to do work at DOE labs, I will be pushing to ensure that the labs, such as Idaho and others, have an opportunity to participate in an equal sense. Can I get your pledge to strongly support those efforts and actually to advance that agenda with the Secretary?

Secretary ABRAHAM. Absolutely. We are in the process of formulating a memorandum of understanding with the Department of Homeland Security. One of the issues that we wrestled with in the period during which the development of the Department's outline was taking place was the question of how to provide the technological support to that Department in dealing with detection equipment, in dealing with preparedness, in dealing with other new technologies that might be used by first responders and so on.

And I think we are close to having a system where our national labs, not just one lab, as was initially suggested, but all the labs, can be teammates in this effort. And clearly, regardless of what the name of your department is, I do not think there is a department right now that does not put the protection of the homeland at the top of its agenda. And I know the labs will not only do great work, but make sure those issues that they are asked to work on have the highest priority they require.

Senator CRAIG. Spence, does DOE intend to move the energy assurance research over to Homeland Security?

Secretary ABRAHAM. Yes. There is a part of the overriding role, in terms of critical energy infrastructure in particular, that will be at the Department of Homeland Security. However, we will still have a component in our Department that works on energy assurance as well, simply because of other responsibilities we have.

Secretary Ridge and I, who worked together in the past, as well as since his ascension to this job, have collaborated on a variety of different projects that have dealt with these critical infrastructure challenges of working with the industries that are affected, at least in my sector. And I know he is doing the same in other sectors as well.

Senator CRAIG. The reason I ask that, I note the 2004 budget has no money in that area.

Secretary ABRAHAM. That is an area that—

Senator CRAIG. How we carry that out, or how do you carry that out, I will be fascinated to learn.

Secretary ABRAHAM. Well, as I said, the principal responsibility for this has moved over there. But we will—again, our electricity reliability work will have a role to play.

Senator CRAIG. Lastly, and I say this only as a comment in passing, because of your mission as it relates to standard market design and FERC, there are a good many of us on this committee that take that issue very seriously and are extremely frustrated at this moment by the chairman of FERC and where he is headed with that.

We are not restructuring an industry to create a super regulatory agency at the Federal level. That is an even more restrictive agency than certainly the dynamics of State utility commissions or agencies. And your observation and analysis of that—and I think as the chairman spoke, the independence of that review will be ex-

tremely valuable and useful to this committee and to the Senate, and the Congress as a whole.

Secretary ABRAHAM. Well, we, as I said, intend to do our best to provide good guidance here. And as I also indicated, we believe that there clearly are a lot of factors that have to be taken into account. I would stress, as I did in my comments before, the importance of distinctions and distinguishing between regions, based on the uniqueness of their energy capabilities, markets, and so on. And I know that that will be reflected upon many other things in the report we provide.

Senator CRAIG. Mr. Secretary, thank you very much for your time and your presence before the committee. This is one Senator that appreciates your leadership. And we thank you for it.

Secretary ABRAHAM. Thank you, Senator.

[Whereupon, at 12:14 p.m., the hearing was adjourned.]

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

RESPONSES TO QUESTIONS FROM SENATOR DOMENICI

WORKFORCE DEVELOPMENT FOR TEACHERS AND SCIENTISTS

Question 2. Secretary Abraham, I appreciate the emphasis in your testimony on a \$1 million pilot program for improving the science and math qualifications of teachers in our K-14 educational system in answer to the President's call for "qualified teachers in the classroom." However, I must note that such programs were conducted some years ago by the DOE. I know from many personal testimonies that these programs were highly successful in New Mexico.

I really question whether you need any pilot program at all. My recommendation is that you simply restart the successful program of a few years ago at levels far higher than \$1 million.

Would you be willing to verify that the infrastructure from these past successful programs is still largely intact and provide an estimate of how large a program the Department could undertake in FY 2004 in this vital area?

Answer. Our National laboratories have continued to support fellowship and internship opportunities through their education and workforce development offices. In some respects, these offices have dramatically improved their quality assurance and efficiency due to the outside evaluations and mentor training being conducted. Our entire application, placement, tracking and evaluation system is online. The President's FY 2004 Budget allows for a robust pilot program.

INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR

Question 3a. The budget request only suggests that \$12 million be reprogrammed from existing programs the U.S. role in ITER for FY 2004.

Do you really anticipate that such a small amount of reprogrammed funding will be taken as a commitment by the international community?

Answer. The very positive signal given to the international community was the President's decision to join the ongoing negotiations. This action was much appreciated by the participants in the ongoing negotiations.

The funding in FY 2004 was our early estimate of the monies needed to participate in the preparatory activities planned for FY 2004, well before the beginning of construction that we understand is planned for FY 2006.

Actual commitment by any of the participants in the ITER negotiations will come at the end of the negotiations, at the time of signing an agreement to build the project.

Question 3b. Is the Administration prepared to request the increased budgets in future years to meet this \$500 million commitment without negatively impacting other Science programs?

Answer. The Administration is prepared to request the future funding necessary to fulfill the United States' negotiated commitments to the ITER project, while maintaining a robust Science program.

Question 3c. Since ITER represents only one of several promising fusion research directions, will the Department continue to fund alternatives to the "tokamak" path towards fusion that is the focus for ITER?

Answer. Yes, the Department is committed to continuing to fund alternative approaches to fusion energy. ITER is specifically a science experiment targeted at the phenomena of burning plasma physics, and the tokamak configuration is the only approach that can deliver the required physics capability at this time. Our strategy is to continue down an optimal path toward a practical fusion power source, using the results from our domestic research program (including a strong alternative concepts element) as well as the results from ITER.

BUDGET

Question 6. Mr. Secretary, I appreciate the significant increase in budgets requested for Nuclear Energy, up almost 19 percent from last year. I especially appreciate your enthusiastic support for the Advanced Fuel Cycle Initiative, that I've championed for several years. But I'm puzzled why a program like Nuclear Energy Research Initiative or NERI, that is the largest supporter of university-based research in this vital field, is targeted for a cut by more than two. And I'm also puzzled why the Nuclear Energy Plant Optimization or NEPO program is targeted for no funding, when the nation depends strongly on our existing nuclear plants to avoid having to replace them with more polluting alternatives.

Can you please discuss the rationale for halving the NERI budget and killing the NEPO budget just when we are undertaking other important ventures to secure a future for nuclear energy in the nation?

Answer. First, I think it is important to make it clear that we believe that both the Nuclear Energy Research Initiative (NERI) and the Nuclear Energy Plant Optimization (NEPO) program have been important and very successful activities. The important initiatives that we believe will form the base of our nuclear energy research program in the future—the Nuclear Hydrogen Initiative, the Generation IV nuclear systems initiative, and the Advanced Fuel Cycle Initiative—all grew out of the success of innovative NERI research and development.

While the funds requested for NERI in FY 2004 represent a reduction from previous years, the budget request will allow us to support those projects that are continuing in the NERI and international NERI programs. During the coming year, we will refine and detail our plans for the Nuclear Hydrogen Initiative, Generation IV, and the Advanced Fuel Cycle Initiative. Once this is done, the Department will then be in a position to pursue new and innovative NERI research in areas that are complementary to our entire research portfolio.

Regarding the NEPO program, we have successfully leveraged a small Federal investment with industry to address technical issues associated with the long term operation of the Nation's existing 103 nuclear power plants. With limited resources, however, we believe that it is appropriate that we focus our research investment on more long term, high risk efforts that the private sector cannot support on its own. It is our hope that industry, which invests between \$80 and \$90 million annually on research, will choose to continue some of the NEPO projects. We are now working with the Electric Power Research Institute on a new, comprehensive strategic plan to guide our future joint research efforts.

Question 8. Mr. Secretary, I compliment the leadership from the President and your Department in the new Hydrogen Fuel Initiative and in the FreedomCAR Initiative of last year. I concur that these new studies have immense promise for future reductions in our reliance on imported oil.

Could additional funding be effectively utilized in FY2004 to advance these hydrogen initiatives even faster?

I'd encourage your Department to develop demonstration projects that can move beyond the R&D phase for hydrogen fuel systems as soon as possible. When do you anticipate that significant demonstration of these technologies can be considered?

Answer. The Department, working with industry, academia, and other stakeholders, devoted an entire year to developing a hydrogen roadmap—a realistic, cost-effective plan to achieve the President's vision. We studied the problems, proposed realistic goals and a timetable to achieve them, and we submitted to Congress an honest budget to fund our detailed plan that has a high probability of success. We recognized that after a certain point, additional funding does not lower technology risks because of the learning time needed to find solutions to the difficult technology barriers.

Within our FY 2004 budget request, we have planned a significant integrated vehicle and infrastructure demonstration. This "learning" demonstration will help us evaluate cost, performance, reliability and safety associated with the technology so that the R&D can be refocused as needed to meet our milestones. Since widespread demonstration activities such as large Federal purchases are expensive, we do not plan to undertake this until the technology gets closer to meeting customer requirements and industry gets closer to realizing a business case to justify large private investments.

BERYLLIUM AT PADUCAH

As you probably know, at least five former Paducah workers have recently been told that they have contracted chronic beryllium disease despite the fact that beryllium was not known to be used at the plant.

Question 29. What funds are in the Fiscal Year 2004 request to eliminate beryllium at the entire site including USEC and DOE areas?

Answer. As a result of positive test results during plant worker health screening, sampling for beryllium contamination was conducted at a small number of suspect DOE facilities. However, no beryllium contamination was detected that required action and therefore funding for beryllium elimination is not included as a stand-alone budget item or as part of a larger budget item. A beryllium sampling task has been initiated to evaluate additional DOE facilities and some United States Enrichment Corporation facilities, and is supported with site funding in Fiscal Year 2003. If and when the need arises for additional sampling or elimination of beryllium, then funding would be made available from within the existing budget.

RESPONSES TO QUESTIONS FROM SENATOR BINGAMAN

OFFICE OF SCIENCE EARMARKS

Question 12. Please provide a list of earmarks mandated for the Office of Science in the Omnibus Appropriations Act for FY 2003 and explain the impact of funding these earmarks on the other programs of the Office. What other scientific programs, specifically, will have to be cut to accommodate these spending mandates?

Answer. The FY 2003 President's request for BER was \$504,215,000. The omnibus appropriation for BER was \$530,000,000, an addition of \$25,785,000 above the request. The conference report direction was \$59,636,000 resulting in \$33,851,000 in unfunded congressional direction.

In order to accommodate the unfunded projects, about 150 projects at the National Laboratories and Universities will not be funded. Approximately 200 scientists, 90 students, and 45 research technicians will not receive funding.

We will reduce the BER Life Sciences program by \$8.3 million. This will impact Structural Biology, Genomes to Life, Carbon Sequestration, and Human Genome research activities. Of particular concern is the reduction of about \$5.0 million to our Genomes to Life research. This research program has just taken off to an enthusiastic and high profile start and the loss of these funds will mean that none of the more than 100 formal proposals and applications that scientists are preparing for an April 22, 2003, deadline will be funded. Genomes to Life builds on the success of genomics, structural biology, and high performance computing research, all DOE strengths. The research will result in rapid technology development and research results that will underpin potential benefits to DOE and the Nation. These include developing long term biotechnology strategies for the clean up of contaminated DOE sites by harnessing complex microbial communities and enhancing U.S. energy security by increasing biological sources of fuels like hydrogen that decrease our dependence on foreign oil and by reduction of new atmospheric carbon dioxide emissions to zero through understanding the Earth's natural carbon cycle and the development of biotechnology strategies for enhanced carbon capture and sequestration, central to the Administration's Climate Change Research and Technology Initiatives. Furthermore, Genomes to Life research underpins fundamental biological research at many agencies, including NIH, NSF, USDA, and DHS, and therefore makes unique contributions to DOE's energy security, environmental security, and national security missions as well as to national health and food security.

Our Climate Change Science subprogram will be reduced by \$10.7 million including the Atmospheric Radiation Measurement Program (ARM), Climate modeling, Atmospheric Sciences, Ecological Processes, Carbon Sequestration, and Integrated Assessment research activities. This Climate Change Science subprogram makes unique contributions to DOE's energy security mission. This reduction slows progress: to improve climate models needed to predict and understand regional climate; to understand the environmental and economic impacts of different levels of atmospheric carbon dioxide; and to develop new ocean- or land-based strategies for sequestering excess atmospheric carbon dioxide.

In the Environmental Remediation subprogram, the Natural and Accelerated Bioremediation Research and the Cleanup Research, including the Environmental Management Sciences Program, will be reduced by \$11.7 million. The Environmental Remediation subprogram makes unique contributions to DOE's environmental security mission. This reduction slows progress to develop more cost-effective, science-based strategies for cleaning up DOE's contaminated sites. DOE is under growing pressure to clean up its waste sites on an accelerated schedule. Delays in fundamental research needed to develop radical new cleanup strategies could mean that these new approaches will not be developed in time to help DOE reduce its cleanup costs and meet its aggressive cleanup schedule.

Our Medical Applications and Measurement Science subprogram will be reduced \$3.2 million impacting the Radiopharmaceuticals, Boron Neutron Capture Therapy, and Measurement Sciences research activities. The Medical Applications and Measurement Science subprogram makes unique contributions to the human health care in the United States and the world. The reduction will delay the development of technology to image gene expression and image changes in brains of patients with neurological diseases and the development of small biosensors for rapid diagnosis of disease.

INSTITUTIONS THAT WILL BE IMPACTED BY UNFUNDED
FY 2003 CONGRESSIONAL DIRECTION

(Many other institutions will also be affected but they cannot be identified at this time since they have pending applications/proposals that are still pre-decisional.)

Universities/Institutions

California, University of at Berkeley
California, University of at Los Angeles
Chicago, University of
Columbia University
Harvard University
Massachusetts Institute of Technology
Massachusetts, University of
Michigan Technical University
Michigan, University of
Monterey Bay Aquarium Research
Institute
Nebraska, University of
Nevada, University of
New Hampshire, University of
New Mexico, University of
North Carolina State University
Oklahoma, University of
Oregon State University

Oregon, University of
Pennsylvania State University
Princeton University
State University of New York at Albany
Virginia Institute for Marine Sciences
Woods Hole Oceanographic Institute

Laboratories

Lawrence Berkeley National Laboratory
Lawrence Livermore National
Laboratory
Oak Ridge National Laboratory
Pacific Northwest National Laboratory
Argonne National Laboratory
Los Alamos National Laboratory

Federal Government

National Aeronautics and Space
Administration

OFFICE OF SCIENCE FY 2003 CONGRESSIONAL DIRECTION

[Dollars in thousands]

State	Project title	Conference appropriation	General reduction	Rescission	Sub- total	SBIR	STTR	Net
Alabama	University of South Alabama Cancer Center	3,000	18	19	2,963	76	4	2,883
Arizona	Institute for Biomedical Science & Bio- technology, University of Arizona.	2,000	11	13	1,976	50	3	1,923
California	Vocational Education Programs at the Los Ange- les Trade Technical College.	500	3	3	494	12	1	481
California	Fuel Cell Advanced Materials and Demonstra- tion Project at Humboldt State University.	500	3	3	494	12	1	481
California	National Center for Neurogenetic Research and Computational Genomics at the University of Southern California.	650	3	4	643	16	1	626
California	Magnetic Resonance Microscope at the Chil- dren's Hospital of Los Angeles.	500	3	3	494	12	1	481
Delaware	PET/CT Scanner at Christiana Care Health Sys- tem.	500	3	3	494	12	1	481
Florida	University of Southern Florida Center for Bio- logical Defense.	1,200	7	8	1,185	30	2	1,153
Florida	Barry University Minority Science Center	1,000	6	6	988	25	1	962
Hawaii	Natural Energy Laboratory in Hawaii	500	3	3	494	12	1	481
Illinois	Riverside Hospital Regional Cancer Center	1,000	6	6	988	25	1	962
Illinois	Bioengineering Research Program at the Univer- sity of Illinois, Chicago.	500	3	3	494	12	1	481
Illinois	CT Scanner at Edward Hospital	500	3	3	494	12	1	481
Indiana	Purdue University Technology Incubator in Northwest Indiana.	4,600	26	30	4,544	114	6	4,424
Indiana	University of Notre Dame College of Engineering Multidisciplinary Research Facility.	1,000	6	6	988	25	1	962
Indiana	Indiana Genomics Initiative at Indiana Univer- sity.	500	3	3	494	12	1	481
Iowa	University of Northern Iowa Existing Business Enhancement Program.	500	3	3	494	12	1	481
Louisiana	Stanley Scott Cancer Center	500	3	3	494	12	1	481
Louisiana	University of Louisiana-LaFayette National Wet- lands Research Center.	1,000	6	6	988	25	1	962

OFFICE OF SCIENCE FY 2003 CONGRESSIONAL DIRECTION—Continued

[Dollars in thousands]

State	Project title	Conference appropriation	General reduction	Rescission	Sub-total	SBIR	STTR	Net
Maine	University of Southern Maine School of Applied Sciences, Engineering, and Technology.	1,000	6	6	988	25	1	962
Maryland	Morgan State University Center for Environmental Toxicology.	500	3	3	494	12	1	481
Massachusetts ...	Pioneer Valley Life Sciences Initiative between the University of Massachusetts and the Baystate Medical Center.	500	3	3	494	12	1	481
Massachusetts ...	Hampshire College National Center for Science Education.	250	1	2	247	6	241
Massachusetts ...	University of Massachusetts at Boston Multidisciplinary Research Facility and Library.	500	3	3	494	12	1	481
Massachusetts ...	Boston University Photonics Center	250	1	2	247	6	241
Michigan	Western Michigan University Nanoscience Research and Computational Institute.	500	3	3	494	12	1	481
Michigan	Nanotechnology Applications at Western Michigan University in Partnership with Altair.	450	3	3	444	11	1	432
Mississippi	North Mississippi Health Services Positron Emission Tomography Cancer Center.	1,000	6	6	988	25	1	962
Missouri	University of Missouri-Columbia Nuclear Medicine and Cancer Research Program.	2,000	11	13	1,976	50	3	1,923
Nevada	Nevada Cancer Institute	1,000	6	6	988	25	1	962
Nevada	Linear Accelerator at the University Medical Center of Southern Nevada.	1,000	6	6	988	25	1	962
Nevada	Nevada Space Grant Consortium at the Desert Research Institute.	100	1	1	98	2	96
New Jersey	Drew University Hall of Science	500	3	3	494	12	1	481
New Jersey	Public Health Research Institute Rapid Detection for Bioterrorism Program in New Jersey.	500	3	3	494	12	1	481
New Mexico	Operations and Capital Investments at the Mental Illness and Neuroscience Discovery Institute (MIND).	10,000	58	64	9,878	248	15	9,615
New York	Environmental Systems Center at Syracuse University.	500	3	3	494	12	1	481

New York	Audubon Biomedical Science and Technology Park at Columbia University.	500	3	3	494	12	1	481
New York	Center for Sustainable Energy at the Bronx Community College.	500	3	3	494	12	1	481
New York	New York University Genomics Project	450	3	3	444	11	1	432
Ohio	Wittenberg University Science Center, Infra- structure & Equipment.	3,800	22	24	3,754	95	6	3,653
Oklahoma	Legume Genome Initiative at the University of Oklahoma.	500	3	3	494	12	1	481
Pennsylvania	Green Chemistry Project at Carnegie Mellon University.	500	3	3	494	12	1	481
So. Carolina	Medical University of South Carolina	1,000	6	6	988	25	1	962
Texas	Center for Environmental Radiation Studies at Texas Tech University.	1,000	6	6	988	25	1	962
Washington	Inland Northwest Natural Resources Research Center at Gonzaga University.	500	3	3	494	12	1	481
	International Water Institute	250	1	2	247	6	241
	Total	50,000	292	314	49,394	1,235	74	48,085

Question 12. Last July, the National Renewable Energy Laboratory issued a report ("Hydrogen Supply: Cost Estimate for Hydrogen Pathways - Scoping Analysis"), that stated that "on-board liquid (methanol or naphtha) reforming or direct FC (fuel cell) technology could . . . eliminate costly hydrogen delivery and dispensing infrastructures, as well as avoid regulatory issues regarding hydrogen handling." However, in the Department's budget request for Fuel Cell Technologies, the budget for Fuel Cell Processor R&D is cut by almost 25%—from a request of \$25.3 million in FY 2003 to \$19 million for FY 2004. The accompanying budget documents state that this cut reflects a "decreased emphasis on on-board fuel processing technologies." Shouldn't we be keeping this option open?

Answer. On-board generation of hydrogen from liquid fuels is a bridging strategy that could lead to introduction of fuel cell technology without requiring an extensive hydrogen infrastructure or on-board hydrogen storage technology. Because liquid fuels (i.e. methanol, naphtha, or gasoline) do not provide the feedstock flexibility compared to hydrogen, on-board generation of hydrogen is not a long-term strategy. Since the energy required during start-up to extract hydrogen on-board the vehicle could take away the efficiency advantage of a fuel cell, we have scheduled a go/no-go decision on this technology for June 2004.

Until this decision is made, it would not be prudent to initiate new projects that would, in effect, prematurely determine the outcome of this decision point. The FY 2004 request fully funds all of our laboratory and industry cooperative agreements currently underway.

Question 15. I am also concerned about your request for State Energy Programs, which is only \$38.8 million compared to the FY 2003 omnibus appropriation of \$45 million. One pressing concern that the states have raised is the lack of funding to support their energy emergency preparedness responsibilities and an equally important non-budget need for improved coordination and communications between the federal government and the states on emergency preparedness. Has DOE assessed the current status of the states' energy emergency planning (a mandatory feature of State energy programs)? Will you provide monetary or technical support for regional energy emergency planning and coordination? Who in the Department has the responsibility for coordinating with the states on energy emergency preparedness?

Answer. The 1990 statutory revision of the State Energy Program (SEP) included emergency planning as a mandatory requirement (P.L. 101-440). DOE assesses development of these plans by the States and ensures that they are updated annually with current points of contact. DOE provides guidance and technical assistance on both developing and implementing State Emergency Plans. Through the EERE Regional Offices, DOE promotes and participates in regional energy meetings that address current energy issues and regional energy dependencies, including preparation for energy emergencies.

In most States, the Energy Emergency Plan is provided as an input to the comprehensive State Emergency Plan. A recent review of the status of the State Energy Emergency Plans found that 55 of the 56 State Energy Offices have revised and updated their plans since the events of 9/11.

The DOE Office of Energy Assurance (OEA) is the department's lead during an energy emergency. EERE and its Regional Offices provide an important role in working with the States in support of their emergency preparedness efforts. EERE and OEA continue to work with NASEO and the States to comply with any new initiatives that may come down from the Department of Homeland Security. Additionally, the Energy Information Administration (EIA) continues to provide valuable and timely information to both the States and the Federal Government.

RESPONSES TO QUESTIONS FROM SENATOR CRAIG

ARGONNE LAYOFFS

Question 21. On the ground in Idaho right now we are dealing with a shortfall in the FY 2003 budget for Argonne West. With the help of Chairman Domenici, the Senate was able to lift the Advanced Fuel Cycle research budget up to \$58 million, from the requested level of only \$18 million for FY 2003. Unfortunately, this is still a cut of \$20 million below last year. Depending on how DOE allocates the cut, the potential effect of this budget might be the dismantling of the Argonne West nuclear research program and a layoff of 300 researchers. Given the Administration's commitment to growing the nuclear energy program, we cannot allow this to happen.

Will you commit to work with me, to mitigate the impacts of this lower budget in 2003, and leave Idaho with something to build on in FY 2004?

Answer. Senator Craig, our plans to create a national command center for nuclear energy research in Idaho require that we preserve the irreplaceable technical expertise at Argonne National Laboratory West. We agree that it is important to mitigate any adverse impacts from the FY 2003 Omnibus appropriation and we are committed to do our part to rebuild the Idaho nuclear research infrastructure.

INVEST IN RESEARCH TO CLEAN UP IDAHO

The FY 2004 budget continues the decline in research related to the Environmental Management program; this program is referred to as the Science and Technology Program. In Idaho, this program will be zeroed out in FY 2004.

Given the massive undertaking of much of the remaining clean up—and the untested technologies for performing it—I continue to believe that the EM program needs a research component. In fact, waste streams in Idaho, such as the high-level waste “calcine” are found no where else in DOE, and technologies for dealing with them are unproven.

Question 23. How will DOE invest in the research that will be needed to complete the clean up?

Answer. The Department has requested in the FY 2004 budget over \$29 million in the Office of Science to support scientific research to address cleanup problems identified by the Office of Environmental Management. The Environmental Management cleanup program does face some difficult challenges as it moves forward to address the clean up of the nuclear weapons complex. The Department has also included in the FY 2004 budget request over \$63 million for critical, high-payback technology development and deployment activities where step improvements can be gained, as well as for activities supporting closure sites. The Office of Environmental Management is currently funding development of a fiber optic sensor designed to assess moisture content within the calcine bins, as well as conducting an engineering evaluation of alternative retrieval strategies for calcine waste at Idaho.

Question 24. Energy assurance is a key national security mission of the DOE. Following 9/11, the Department commissioned a task force to look at vulnerabilities in this area. They determined that SCADA systems represented a high priority vulnerability to our nation’s energy supplies. Subsequently, the Department management has informed the Idaho delegation of their intent to establish a SCADA Test Bed at INEEL.

Does DOE intend to move forward with that or do they intend to transfer this to the Department of Homeland Security?

If the former, why are there no dollars in the President’s Budget for FY04 to move forward?

Answer. The Department of Energy continues to believe that SCADA systems represents a high priority vulnerability to the nation’s energy supplies. The President’s FY04 Budget does not contain funding for a SCADA Test Bed at INEEL because in the months after September 11, the Department placed a higher priority on the identification and correction of energy infrastructure vulnerability assessments. DOE remains very interested in reducing vulnerabilities to the energy system related to SCADA systems.

As you know, the Homeland Security Act transferred the DOE Office of Energy Assurance to the new agency. Through the competencies gained by this transfer, the Department of Homeland Security will play a crucial role in working with all critical infrastructure sectors to overcome vulnerabilities to terrorist attack. The Department of Energy is currently reconstituting the Office of Energy Assurance and will coordinate with the DHS in working within the energy sector on these issues. The addition of DHS vulnerability assessment capabilities will allow the DOE to increasingly focus on research activities such as the SCADA Test Bed. For that reason, projects such as the SCADA Test Bed are likely to receive more attention as the Department prepares its FY05 budgetary submissions.

RESPONSES TO QUESTIONS FROM SENATOR AKAKA

FUNDING FOR THE OFF-SITE SOURCE RECOVER PROGRAM

The Department of Energy manages the Off-site Source Recovery Program to provide safe and secure storage facilities for low-level radioactive waste. According to a recent report by the Monterey Institute, about 18,000 sources come under this program, including Plutonium-238 and other materials that pose high security concerns due to their radioactivity. The program has collected about 3,000 sources that are being stored at a temporary facility until a final disposal site is built.

Question 20a. Given the serious new national security aspect of this and other radioactive material programs, which were originally created to safeguard public health and the environment, why is there no funding requested for the program in the President's FY 04 budget?

Answer. The Department of Energy takes seriously the new national security aspects of this source recovery program. In June 2002, the Secretary of Energy chartered an interagency review with the Chairman of the U.S. Nuclear Regulatory Commission to ensure the Department's resources are spent wisely, to focus our recovery efforts on those sealed sources which pose the greatest concern.

The Department of Energy requested a total of \$1.989 million in the FY 2004 budget for the Off-Site Source Recovery Program to conduct surveillance and maintenance. This funding is in two parts, the first of which is for \$1.5 million in the Non-Defense Environmental Services Appropriation, Non-Closure Environmental Activities Account.

The second part is for \$489,000 in the Defense Environmental Services Appropriation, Non-Closure Environmental Activities Account.

In addition, the Congress provided \$10 million to the Off-Site Source Recovery Program in the FY 2002 emergency supplemental appropriations. This funding specified that the Off-Site Source Recovery Program was to recover 5,000 sources in eighteen months. The funds were actually received and made available for source recovery in October 2002, and the eighteen-month period ends in March 2004. Therefore, approximately one-third of this \$10 million, or about \$3.3 million, will be expended in the first half of FY 2004.

SAFETY AND SECURITY AT THE OFF-SITE SOURCE—RECOVERY SITE

Question 20b. Will the Department of Energy be able to ensure the safety and security of the sources already stored at the OSR site?

Answer. Yes. The sources being recovered are being stored in accordance with the Department of Energy's requirements for safeguards and security of the material. In the case of sources that are declared waste and stored as waste, appropriate physical security measures are in place to protect this stored waste.

COLLECT AND STORE SOURCES AT OSR SITE

Question 20c. How will the Department of Energy collect and store the sources that remain out there?

Answer. The Department of Energy's Off-Site Source Recovery Program (OSRP) has recovered over 5,000 sources in the past several years. The program has recovered over 1,000 sources since the beginning of FY 2003, and is well on the way to meeting the goal of 5,000 sources in eighteen months which was set by Congress. The OSRP has a database where source owners have reported and continue to report excess and unwanted sources. The Department of Energy and the U.S. Nuclear Regulatory Commission (NRC) have developed a prioritization methodology which the NRC has approved and the Department has implemented.

FINAL DISPOSAL FACILITY BY 2006

According to a Los Alamos National Laboratory report on the Off-Site Source Recovery Program, "for planning purposes, it is assumed that some form of [final] disposal option might become available in 2006."

Question 20d. Will the Department of Energy have a final disposal facility ready by 2006?

Answer. The sources being recovered by the Off-Site Source Recovery Program exceed the U.S. Nuclear Regulatory Commission's limit for class C waste, which is commonly referred to as Greater Than Class C waste. Currently, there are no existing disposal facilities for this type of waste. The first step the Department of Energy must take to develop this disposal is to perform the appropriate analysis under the National Environmental Policy Act. This process is expected to take approximately two years.

RESPONSES TO QUESTIONS FROM SENATOR BUNNING

CONTINUED FUNDING FOR PADUCAH

I have worked hard to obtain adequate funding for cleanup at the Paducah plant. I was pleased that Paducah received \$134 million for Fiscal Year 2003 from the Omnibus Appropriations Bill. The DOE's budget request for cleanup at the Paducah

plant is \$118 million, which is \$45 million above the FY 2003 request of \$73 million. Kentucky thus far has failed to sign onto the DOE's accelerated cleanup plan.

Question 25. If Kentucky fails to sign onto the DOE's accelerated cleanup plan this year, will the DOE continue to ask for substantial funding for Paducah?

Answer. Consistent with the Department's environmental management reform initiative, sites not having an accelerated cleanup plan will be funded at their baseline level of funding which includes keeping operations safe. With an agreed-upon plan, additional funding would be provided for pulling work forward, accelerating risk reduction and closure.

CONSTRUCTION OF DUF6 FACILITY AT PADUCAH

Since you appeared before the Energy Committee last year, the DOE issued a contract for the construction and operation of DUF6 plants that treat and dispose of waste. The DOE's request for construction of the DUF6 plant at the Paducah plant is \$45 million. It is my understanding that even with a DUF6 plant at Paducah and Portsmouth, it will take at least 20 years to process uranium at both sites.

Question 26a. What is the date that the DOE expects to begin construction of the DUF6 facility at the Paducah Plant?

Answer. The Department expects to begin construction, particularly ground breaking and site preparation, by July 2004, in accordance with the mandate in Public Law 107206, 2002 Supplemental Appropriations Act for Further Recovery from and Response to Terrorist Attacks on the United States.

BALANCE OF UNOBLIGATED FUNDS FOR DUF6 PROJECT

Question 26b. What is the balance of unobligated funds available for the DUF6 project from previous years appropriations and from unexpended balances from DOE/USEC Memorandum of Understandings?

Answer. There is approximately \$20 million of unobligated funds available from the United States Enrichment Corporation Memorandum of Understanding for the DUF₆ project.

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC, February 28, 2003.

Hon. SPENCER ABRAHAM,
Secretary, U.S. Department Energy, Washington, DC.

DEAR MR. SECRETARY: I would like to take this opportunity to thank you for appearing before the Senate Committee on Energy and Natural Resources on February 25, 2003, to give testimony regarding the Department of Energy's FY04 Budget request.

Enclosed herewith please find a list of questions which have been submitted for the record. If possible, I would like to have your response to these questions by March 14, 2003.

Thank you in advance for your prompt consideration.

Sincerely,

PETE V. DOMENICI,
Chairman.

[Note: Responses to the following questions were not received at the time this hearing went to press.]

QUESTIONS FROM SENATOR DOMENICI

Question 1. What is the Administration doing to minimize the economic disruption as a result of the high price of oil and gas?

Question 4. Mr. Secretary, I appreciate the strong emphasis on completing site cleanup as quickly as possible. But as part of that emphasis, budgets for EM Science and Technology programs have been decimated. I'm concerned that the Department is losing important opportunities to introduce improved science into the cleanup effort by such reductions. And in the case of programs like WERC, the Waste Management Education and Research Consortium, which has a superb record for training new talent for the EM programs, I fear that the failure to request funding is short-sighted.

How do you justify your proposal to stop funding the WERC program, especially when the Department has recently renegotiated a multi-year contract for WERC?

Isn't the Department concerned with losing the contributions and expertise of the WERC program and its record of contributions to EM program goals?

Question 5. Mr. Secretary, FY2004 is the third year of flat budget requests for the Office of Science. I appreciate that the completion of some construction projects in FY2004 enabled your proposals for expanded funding of Genomes to Life and Nanoscience. But I think the Department and Administration must start requesting significant increases in the budgets for the Office of Science.

Since that Office is the largest supporter of research in most physical sciences, I fear that we are seriously jeopardizing the competitiveness of our nation by short-changing developments in these areas. In fact, our rush to fund health sciences through the NIH, without comparable funding to the Office of Science, may prevent us from realizing our goals in the health sciences. After all, many developments in health sciences also require advances in the physical sciences, we need strong health and physical sciences to truly enable advances.

Do you share my concern that we must do more to increase the nation's talent pool in the physical sciences and that increased budgets for the Office of Science are critically important in future years?

Question 7. Mr. Secretary, the budget request mentions that the Administration will propose a "cap adjustment mechanism" to provide greater flexibility for funding the Yucca Mountain accounts in FY2004 and FY2005. I'm receiving daily questions about this proposal. But, since I have yet to see the details of the Administration's proposal, it's impossible for me to complete an assessment of it.

How quickly will the Administration provide draft legislation to Congress?

Question 9. Mr. Secretary, I note that funding requests for Electric Reliability and High Temperature Superconductivity remain flat between FY2003 and FY2004. That surprises me a little, given the importance to the nation of maintaining and improving reliability of our electricity supplies, and the potential immense impact that high temperature superconductivity can make to increase efficiency of many electrical processes.

Are you confident that we are doing as much as we can do to improve our electric reliability and to utilize high temperature conductors as quickly as possible?

Question 10. Secretary Abraham, the FY2003 Omnibus Appropriations Bill includes a provision directing you to conduct an independent cost benefit analysis of FERC's proposed rulemaking on Standard Market Design. The provision directs you to submit the analysis no later than April 30, 2003.

What steps will you take to assure that this study will be independent?

Can you commit to having the DOE analysis submitted by the end of April?

QUESTIONS FROM SENATOR BINGAMAN

Question 11. According to a Reuters story quoting you on February 12—the Administration is closely monitoring crude oil inventories and will decide to release oil from the SPR when it is needed to "address severe supply issues". Can you elaborate on exactly what would constitute a "severe supply issue" that would lead to a Presidential decision to drawdown the SPR?

Are you doing anything to prepare for a drawdown, such as running simulations or other tests of the operational capability to release oil from the SPR?

Question 13. It appeared last year that insurance arrangements on the part of some DOE contractors, State laws, or the lack of a current corporate entity to participate in worker's compensation awards was causing problems in implementing Subtitle D. These situations were characterized as "missing payor" problems. Does DOE need additional legal authority to pay Subtitle D claims where these circumstances exist? Will you work with us to fix any problems in coverage under Subtitle D?

Question 14. The President's request for the Energy Information Administration is the same amount this year as it was last year (\$80.1 million) which translates into a reduction in real terms. At a time when timely and accurate energy data is critically important to policy makers, consumers and all participants in energy markets, EIA has been doing an excellent job on a tight budget.

However, EIA is continually being asked to take on more tasks such as the weekly natural gas storage report they took over from industry last year. And there is other data that we need.

For example, one of the witnesses (Matt Simmons) at our February 13 oil hearing pointed out that we currently only measure "primary oil stocks" which are defined as petroleum storage in excess of 50 thousand barrels. We have no good data on smaller secondary or tertiary stocks. Thus, we have no way to measure what stock levels are or what should constitute minimum operating levels for stocks.

We also have no real-time data on oil production. Without this data, according to Mr. Simmons, there is no system for alerting us when stocks drop too low until it is too late and actual physical shortages appear.

I am concerned that EIA is not being allocated adequate resources in your budget request to provide the data we need. Why hasn't funding for the EIA been increased this year?

Question 16. Mr. Secretary, as you know both the House and Senate versions of the H.R. 4—the national energy bill contained significant provisions designed to emphasize the federal government's leadership responsibilities with respect to energy efficiency and energy conservation provisions which were supported by the Administration. I am disappointed that your budget request for the Federal Energy Management program (FEMP) does not reflect this Congressional support. In fact, FEMP funding would be cut by about 14 percent compared to your request for FY2003. While the federal government made progress in improving its energy efficiency during the 1990's, your budget documents state that energy consumption actually increased slightly in 2001 and energy costs increased by 14%. Given that, it seems unwise to backslide on energy efficiency or to waste taxpayer dollars on energy bills that could be reduced through efficiency measures. Could you provide for the record the impact of this reduction on the FEMP support provided by DOE?

Question 17. What will happen to the Yucca Mountain program if the Administration's proposal is not adopted and the program continues on level funding?

What is the current status of the various lawsuits against the DOE for failing to meet its contractual obligation to begin disposing of the utilities' waste? What effect may judgments against DOE in those cases have on DOE's ability to pay for the development of the repository?

QUESTIONS FROM SENATOR AKAKA

Question 18. As you know, Mr. Secretary, I have a strong interest in Hydrogen programs. Hawaii and all islands in the Pacific share a common need for an alternative, reliable energy source that we will not need to import. Hydrogen is a primary contender, and I am optimistic that in my lifetime I will be able to see hospitals, homes, and even military bases and cars running on locally-produced sources of Hydrogen.

Naturally, I am pleased to see the President's initiative for Hydrogen fuel cell research and development, and the goal to have cars on the road by 2020. But I have concerns that the initiative will focus on personal mobility, rather than providing milestones in the short-term for a robust infrastructure for stationary and even portable applications.

I understand that the Department has established long-term goals, but what are the milestones in the short-term that demonstrate a sound pathway for the Hydrogen economy of the future? Most of the technologies will use the same Proton Exchange Membrane (PEM) technology—whether stationary or mobile sources such as cars and trucks, so why aren't we focusing on stationary sources as well?

Question 19. The Department of Energy is requesting \$26.6 million in the FY04 budget for the Natural Gas Technologies Program. This program supports "innovative and breakthrough technologies" such as the gas hydrates program. The reliance on new natural gas sources such as methane hydrates could help reduce carbon dioxide emissions and our reliance on international sources of fossil fuels. Last fall, an international team of researchers in the Ocean Drilling Program successfully brought 3,000 meters of gas hydrate core samples to the sea's surface, while maintaining sub-sea floor pressures. This achievement provides several breakthroughs for the identification and study of gas hydrates that may bring us closer to safe, reliable recovery of hydrates. We need to continue and increase this commitment to invest in basic research.

Why has the Department's funding request decreased? Starting with the FY02 request of \$4.7 million, the requests have declined over \$1 million from FY03 to the proposed FY04 budget request of \$3.5 million. Is the Department not committed to innovative research in gas hydrates? Does the funding request reflect the Department's commitment to the program?

A large portion (\$13.9 million) of the funding in Natural Gas Technologies Program will shift to the relatively new Sustainable Supply Initiative. I think you would agree that we should not sacrifice the future for short-term gain. Are the funding decreases in existing programs such as methane hydrates being diverted from long-term and high-risk research with public benefits, to a near-term focus on sustainable supply? How will this bring us closer to using gas hydrates for energy sources in the long run?

QUESTION FROM SENATOR CRAIG

Question 22. I am aware that you will be hosting a conference in Vienna on Radiological Dispersion Device threat mitigation and radiological security. In my view, laboratories that have a lead on fuel cycle issues such as Argonne, are uniquely positioned to participate heavily in these programs as they relate to nuclear and radiological security because they have the relevant expertise. Unfortunately, such opportunities seem to go preferentially to NNSA laboratories.

To mitigate the nuclear energy funding shortfall for Argonne described above, the following potential opportunities outside of Nuclear Energy have been identified. Please provide an individual reaction to possible participation by non-NNSA labs such as Argonne for each of the following program areas:

- Fissile Materials Disposition (NA-26/DP)—Providing expertise such as irradiation studies, purification process expertise, systems analyses, etc. to support the program offices in existing and expanding fissile material disposition programs.
- U.S. Orphan Source Disposition (EM-20/NA-10)—Expanding existing off-site source recovery project (OSRP) and /or acquiring a portion of the existing project to bring a final resolution to problematic orphan sources in the U.S. Designing the processes to dismantle actinide sources and introduce the materials into the fuel cycle research stream.
- RDD Threat Mitigation (NA-25)—Reducing the threat of radiological dispersion devices (RDD) through the enhanced security and education outside the United States.
- Mobile Melt and Dilute (NA-24)—Design, test, and demonstrate a mobile system for down-blend of at risk weapons usable materials outside of the U.S.

QUESTIONS FROM SENATOR BUNNING

Question 27. The DOE's request for maintenance and storage of the 39,000 current DUF6 cylinders at the Paducah plant is \$4 million, which is an \$8 million reduction over the previous year's request. Why did you reduce the funding for safe storage of the cylinders?

Question 28. Under Section 502 of the Fiscal Year 02 Supplemental Appropriations Act, the Secretary of Energy was given authority to expend funds reserved in the USEC Fund in the Treasury for the construction and operation of the DUF6 facilities thirty days after a contract was awarded. It is my understanding that the Fund currently contains approximately \$373 million. Does the DOE plan to use any of the \$373 million for the cost of constructing or operating the DUF6 facilities? If not, is legislation required to assure authorization for the DOE to access the Fund?

Question 30. The DOE has requested approximately \$14.9 million for the former worker medical screening program. In the Fiscal Year 03 Appropriations bill, Paducah, Portsmouth, and Oakridge obtained \$3.5 million. How much of the \$14.9 million is designated for the three gaseous diffusion plants?

Question 31. During the Cold War, workers employed at the Department of Energy sites across the country served our country by helping to make nuclear weapons. Many of these workers subsequently became ill due to their work with radioactive and toxic substances at the sites. The DOE has worked to align the Physician's Panel rule for the Energy Employees Occupational Illness Compensation Program Act with Congressional intent. However, workers' claims for the Physician Panel under Subtitle D of the Act are backlogged. Your staff indicates that only 20 of the 14,000 requests for assistance with claims related to state worker compensation have been sent to the Physicians Panel and only 6 of those claims have been processed. Paducah alone has over 1,900 claims with 0 having been processed. How long is it going to take for the DOE to process these cases? What are the major obstacles the DOE is facing that has led to this massive backlog?

Question 32. The Department of Labor has been tasked with reviewing claims for cancer, beryllium disease, and silicosis under Subtitle B of the Energy Workers Compensation Program Act. The DOL has received over 39,000 claims, recommended decisions on almost 20,000 of those, and issued \$475 million in payments to 6,600 claimants since July, 2001. This is a far cry from DOE's 6 claims that have been processed in the same amount of time. Is the DOE the right agency to be implementing the compensation program under Subtitle D or would the Department of Labor serve the sick workers better?

Question 33. The DOE General Counsel has indicated that the DOE does not have entities who will pay claims for many workers whose claims have been approved by the Physicians Panels. This problem involving thousands of claims has not been solved in states such as Kentucky, Iowa, Missouri, Ohio, and Colorado. This problem

was revealed to Congress nearly a year ago, and was identified by your advisory committee nearly 18 months ago. Last year, I co-sponsored legislation that would give the Department of Labor a role in helping to solve some of the obstacles to DOE's implementation of this program. I believe that you don't fix something that isn't broken, but we know this is broken so it should be fixed. Does the DOE have any recommendations of how to fix this problem?

Question 34. If USEC does not choose Paducah to operate its new centrifuge plant, the Paducah plant will shut down operations in 2010. The Paducah community has worked hard to increase the job market in the community when the plant closes. The DOE has requested only \$15 million for the Office of Worker and Community Transition, which helps workers and communities adversely impacted by downsizing or closing of DOE facilities. This request is a 41.6% decrease from DOE's Fiscal Year 03's request. For Paducah, the DOE has requested \$280,000. Why has the DOE decreased funding for this office?

Question 35. Currently, Bechtel Jacobs is the contractor at the Paducah plant. The DOE has indicated that it is considering re-competing the cleanup contract at the Paducah plant. When does the DOE expect to make a decision on this? If the DOE re-competes the contract, do you think it will negatively impact cleanup efficiency at the plant or start-up time for the DUF6 facility?

Question 36. The funding request for FERC is \$199 million. Kentucky has the lowest residential electricity rates in the country. The FERC's proposed Standard Market Design rule, or SMD, appears to penalize states with low costs to benefit those with high costs. Do you believe that FERC's SMD rule will negatively affect Kentucky's rates?

Question 37. TVA recently announced a rate increase for its customers. Currently, TVA is not subject to FERC jurisdiction for its rates, charges, and terms, and therefore, is not subject to any oversight other than by themselves and Congress. Placing TVA under FERC would require it to be subject to the same regulatory requirements as other utility companies. What do you think of FERC overseeing TVA for how it operates its transmission grid and how it charges its customers for wholesale electricity? Do you think FERC oversight will bring more competition into TVA's region that right now operates under its monopoly?

Question 38. Coal continues to play a large role for energy in our country. The DOE request for the past two years for the President's Coal Research Initiative has remained stagnant at approximately \$320 million. The budget request for Kentucky coal research and development is \$802,000. Do you think that funding for coal research and development is adequate to bring new clean coal technology into the commercial sector quickly?